CÓPIA NÃO CONTROLADA

Gestetner LANIER RICOH savin

G056/G058/G073/G074
SERVICE MANUAL

001048MIU

RICOH GROUP COMPANIES

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WARNING

The Service Manual contains information regarding service techniques, procedures, processes and spare parts of office equipment distributed by Ricoh Corporation. Users of this manual should be either service trained or certified by successfully completing a Ricoh Technical Training Program.

Untrained and uncertified users utilizing information contained in this service manual to repair or modify Ricoh equipment risk personal injury, damage to property or loss of warranty protection.

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LEGEND

PRODUCT CODE	COMPANY			
	GESTETNER	LANIER	RICOH	SAVIN
G056	P7026	—	Aficio AP2600	SLP26
G058	P7026n	—	Aficio AP2600N	SLP26n
G073	P7126n	Ricoh AP2610N	AP2610N	MLP26n
G074	P7126	Ricoh AP2610	AP2610	MLP26

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⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the printer power cord is unplugged.
2. The wall outlet should be near the printer and easily accessible.
3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check needs to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

Toner and developer are non-toxic, but if you get either of them in your eyes it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

The printer and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

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SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:

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INSTALLATION

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1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT

1. Temperature Range: 10 °C to 32 °C (50 °F to 89.6 °F)
2. Humidity Range: 15 % to 80 % RH
3. Ambient Illumination: Less than 2,000 lux (do not expose to direct sunlight).
4. Ventilation: 3 times/hr/person
5. Avoid areas which are exposed to sudden temperature changes. This includes:
   1) Areas directly exposed to cool air from an air conditioner.
   2) Areas directly exposed to heat from a heater.
6. Do not place the machine in an area where it will be exposed to corrosive gases.
7. Do not install the machine at any location over 2,500 m (8,125 ft.) above sea level.
8. Place the machine on a strong and level base. (Inclination on any side should be no more than 5 mm.)
9. Do not place the machine where it may be subjected to strong vibrations.

1.1.2 MACHINE LEVEL

Front to back: Within 5 mm (0.2”) of level

Right to left: Within 5 mm (0.2”) of level

1.1.3 MACHINE SPACE REQUIREMENT

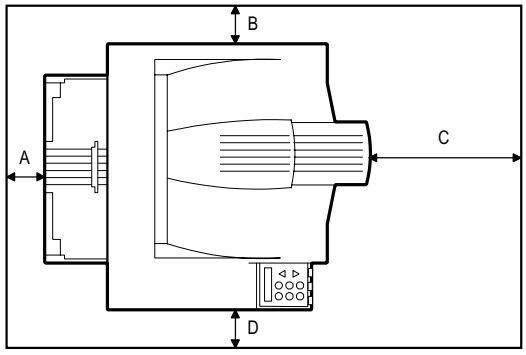
Place the machine near the power source, providing clearance as shown.

A: Over 10 cm (4”)

B: Over 10 cm (4”)

C: Over 100 cm (40”)

D: Over 10 cm (4”)



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1.1.4 POWER REQUIREMENTS

⚠CAUTION
1. Make sure the plug is firmly inserted in the outlet.
2. Avoid multi-wiring.
3. Be sure to ground the machine.

1. Input voltage level: 120 V, 60 Hz: More than 10 A
   220 V ~ 240 V, 50 Hz/60 Hz: More than 6 A
2. Permissible voltage fluctuation: ±10 %
3. Do not set anything on the power cord.

1.2 MACHINE INSTALLATION

Refer to the Operating Instructions for details.

1.3 OPTIONAL UNIT INSTALLATION

The following options are available for this machine. Refer to the Operating Instructions for how to install these options.

- Paper Tray Unit
- 4-bin Mailbox
- 1-bin Shift Tray
- Duplex Unit
- Envelope Feeder
- NIB (G056 only) - the NIB is a standard component for the G058
- Hard disk
- IEEE1394 (G056/G058 - to install in the G058, the NIB must be removed first)
- 64-MB DIMM

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PREVENTIVE MAINTENANCE

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2. PREVENTIVE MAINTENANCE

2.1 USER MAINTENANCE

All PM items can be done by the customer, using the maintenance kit. The maintenance kit contains the items listed below.

Meter-charge mode must be set to 'disabled' (controller service mode).
Cross-reference: Section 5.3 Engine service mode

When the PM counter reaches 90K, "Replace Maintenance Kit" is displayed. After the user replaces the fusing unit in the maintenance kit, the machine automatically resets the PM counter.

Item	Quantity	Remarks
Fusing unit	1	
Transfer roller	1	
Paper feed roller for the standard tray	1	
Paper feed rollers for the optional PFU	2	Optional paper tray unit
Friction pad - standard tray	1	
Friction pads - optional trays	2	Optional paper tray unit

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2.2 SERVICE MAINTENANCE

The following tables list the PM items when the PM is done by service.

NOTE: 1) You must switch on meter-charge mode in printer engine service mode to disable the user's PM warning.
2) After replacing the fusing unit, make sure to reset the PM counter using the printer engine service mode “PM Counter Reset”.

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

Main unit

Item	90K	EM	Remarks
Paper Feed			
Paper Feed Roller	R	C	Clean with water
Friction Pad	R	C	Clean with water
Registration Mylar	C	C	Clean with water
Around the Drum			
Transfer Roller	R		
Fusing Unit and Paper Exit			
Hot Roller	R		
Pressure Roller	R		
Hot Roller Strippers	R		
Fusing Thermistor	R	C	Clean with alcohol if necessary.
Bushing - Fusing Roller	R		
Bushing - Fusing Pressure	R		
Fusing Entrance and Exit Guide Plates	C		Clean with water or alcohol

Paper Tray Unit

	90K	EM	NOTE
Paper Feed Roller	R	C	Clean with water
Friction Pad	R	C	Dry cloth
Bottom Plate Pad	C	C	Clean with water

Four-bin Mailbox

	90K	EM	NOTE
Exit Rollers		C	Clean with water
Driven Rollers		C	Clean with water
Trays		C	Clean with water

One-bin Shift Tray

	90K	EM	NOTE
Exit Rollers		C	Clean with water
Driven Rollers		C	Clean with water
Transport Rollers		C	Clean with water
Paper Tray		C	Clean with water
Tray Paper Sensor		C	Clean with water

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REPLACEMENT AND ADJUSTMENT

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

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3. REPLACEMENT AND ADJUSTMENT

⚠CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

NOTE: This manual uses the following symbols.

☛ : See or Refer to : Screws : Connector

3.1 SPECIAL TOOLS

Part Number	Description	Described Section	Q'ty
A0069104	Scanner Positioning Pin (4 pcs/set)	3.3	1
A2309352	Flash Memory Card - 4MB	5.4	1
G0219350	Loop-back connector - parallel	5.5	1

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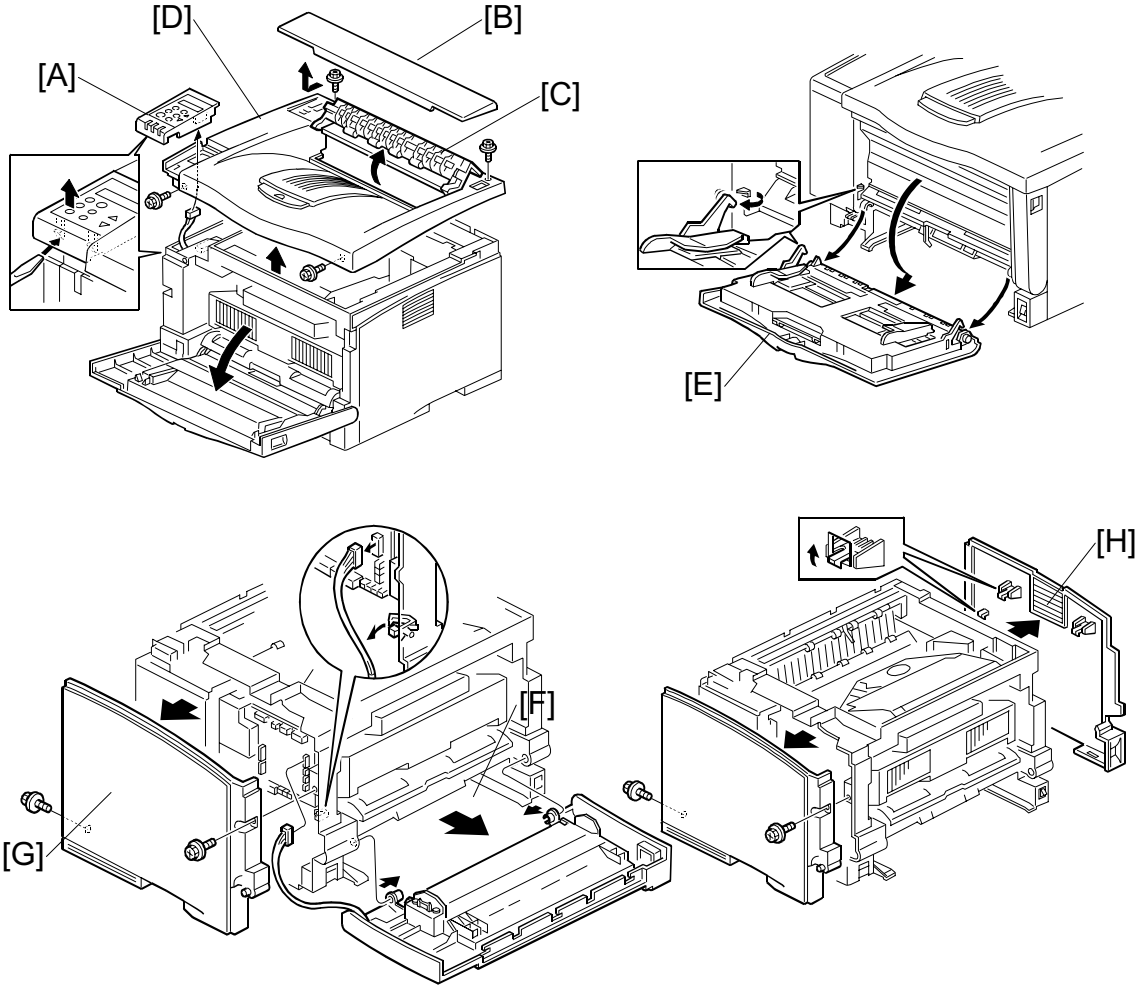
3.2 EXTERIOR COVERS



To remove the left or right cover, separate the machine from the optional paper tray unit first.

Open the front cover.

[A]: Remove paper tray
[B]: Operation panel (2 hooks, x1)
[C]: Upper exit cover
[D]: Open the exit guide plate.
[E]: Upper cover (x4)
[F]: By-pass tray unit (2 hooks)
[G]: Front cover (3 hooks, x1)
[H]: Left cover (x2)
[I]: Right cover (3 hooks)

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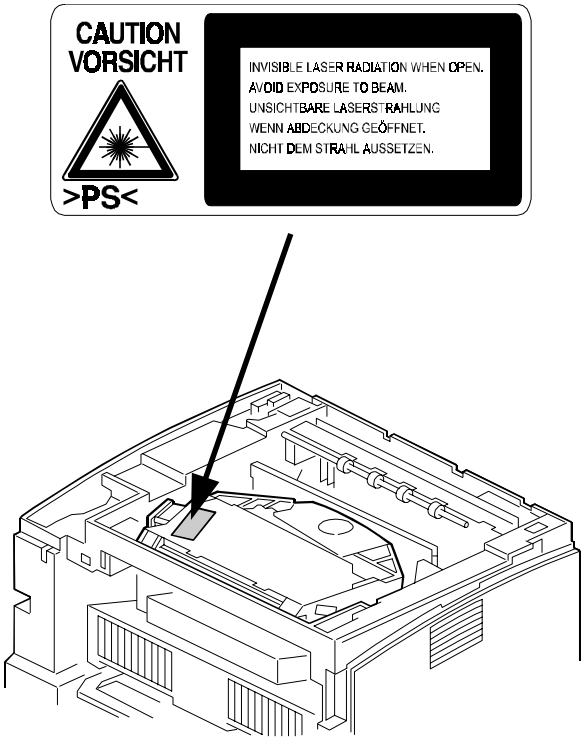
3.3 LASER UNIT

⚠WARNING

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

3.3.1 CAUTION DECAL LOCATIONS

The caution decal is located in the laser section as shown below.



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3.3.2 POLYGON MIRROR MOTOR

⚠WARNING

Turn off the main switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

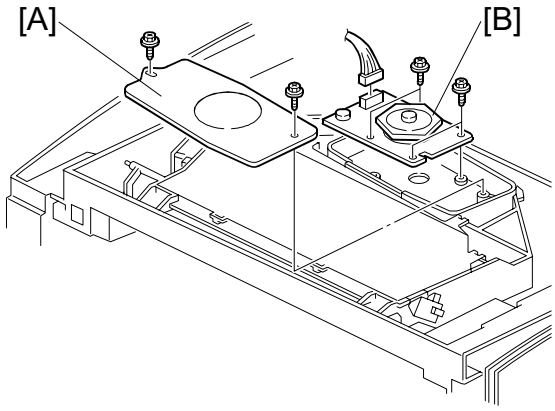
Operation panel (☛ 3.2 Exterior Covers)

Upper cover (☛ 3.2 Exterior Covers)

[A]: Polygon mirror cover (x2)

[B]: Polygon mirror motor (x4, x1)

NOTE: Do not touch the surface of the mirror with bare hands.

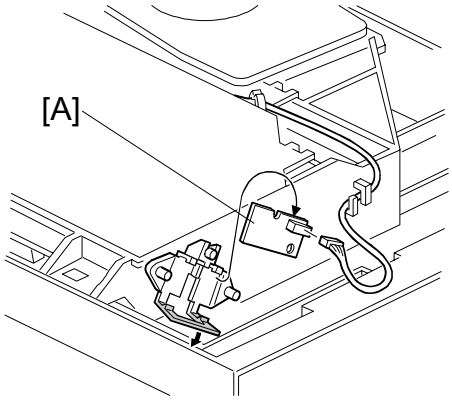


3.3.3 LASER SYNCHRONIZATION DETECTOR

Operation panel (☛ 3.2 Exterior Covers)

Upper cover (☛ 3.2 Exterior Covers)

[A]: Laser synchronization detector (x1)



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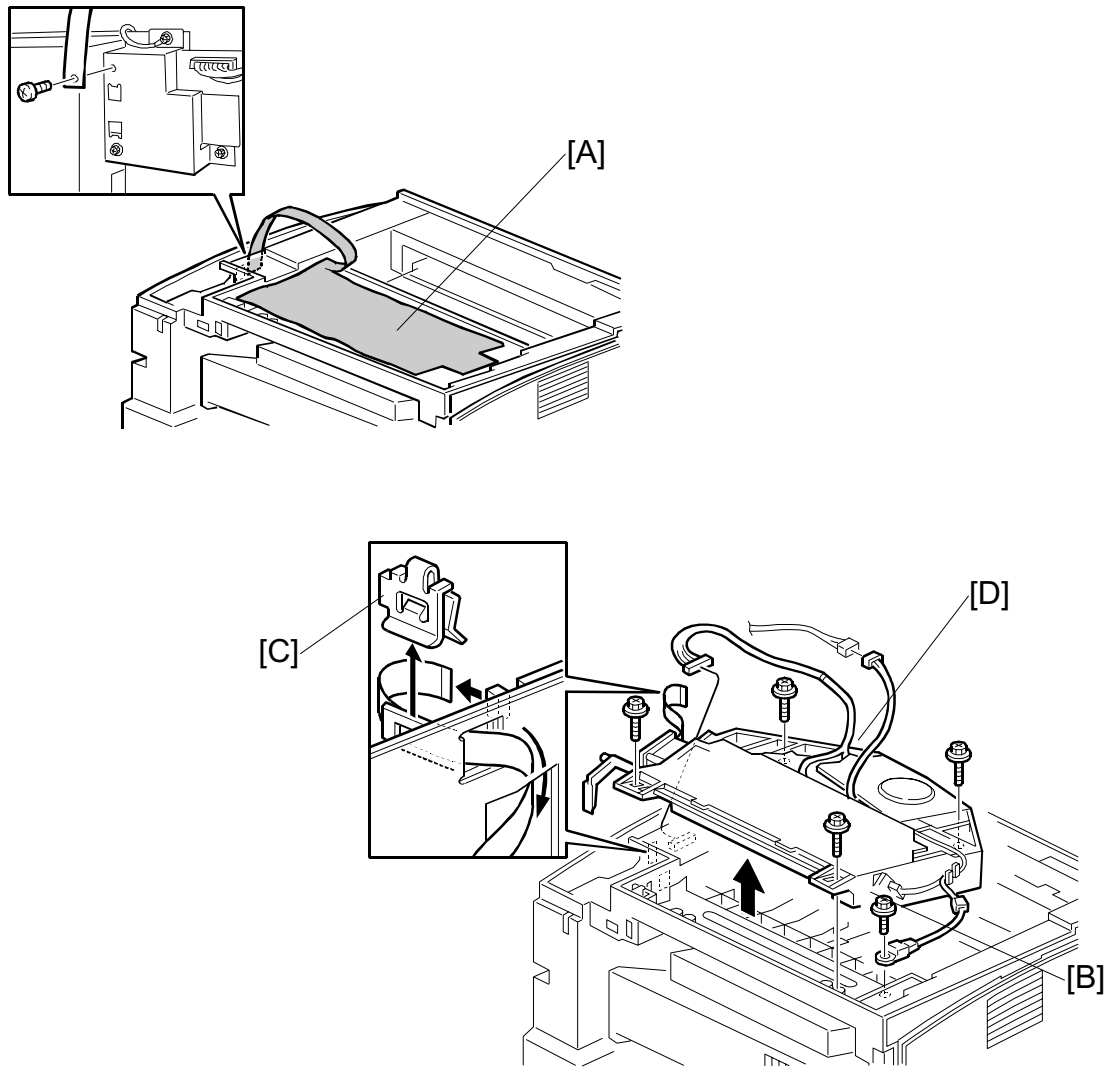
3.3.4 LASER UNIT



Operation panel (☛ 3.2 Exterior Covers)

Upper cover (☛ 3.2 Exterior Covers)

Left cover (☛ 3.2 Exterior Covers)

[A]: **230V machine only:** Sheet (☞ x1)
[B]: Thermistor (☞ x1)
[C]: Clip
[D]: Laser unit (☞ x4, 1 flat cable, 🖙 x2)

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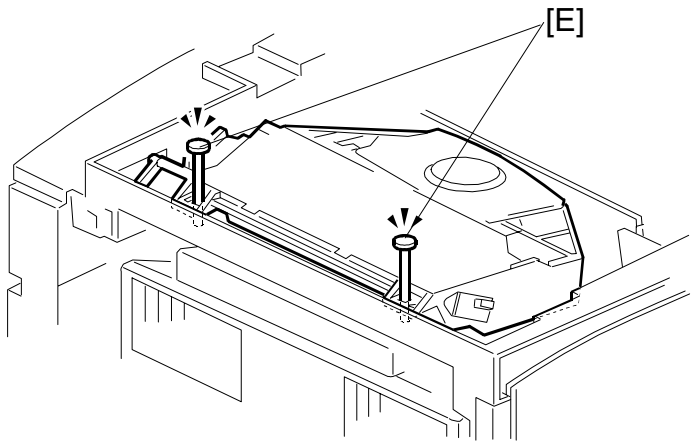
When reinstalling the laser unit

Use the scanner positioning pin (P/N: A0069104) to reinstall the unit.



[E]: Set the positioning pins as shown above. Then secure the laser unit.

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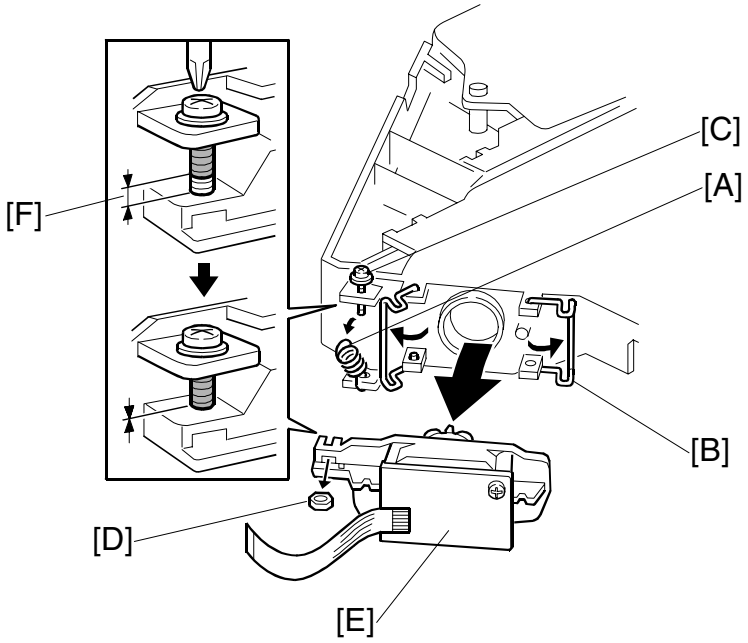
3.3.5 LASER DIODE UNIT

⇒



Laser Unit (☛ 3.3.4 Laser Unit)

[A]: Spring
[B]: LD unit holders
[C]: Loosen the screw
[D]: Nut
[E]: LD Unit

NOTE: 1) Do not remove the screws that secure the LD board.
2) Do not touch any variable resistors on the LD board.

When installing the LD Unit:

Tighten the screw [C] until the unpainted portion of the screw [F] is not visible.

After installing the LD unit, check the test pattern for the final adjustment (see *Laser beam pitch adjustment* the following procedure).

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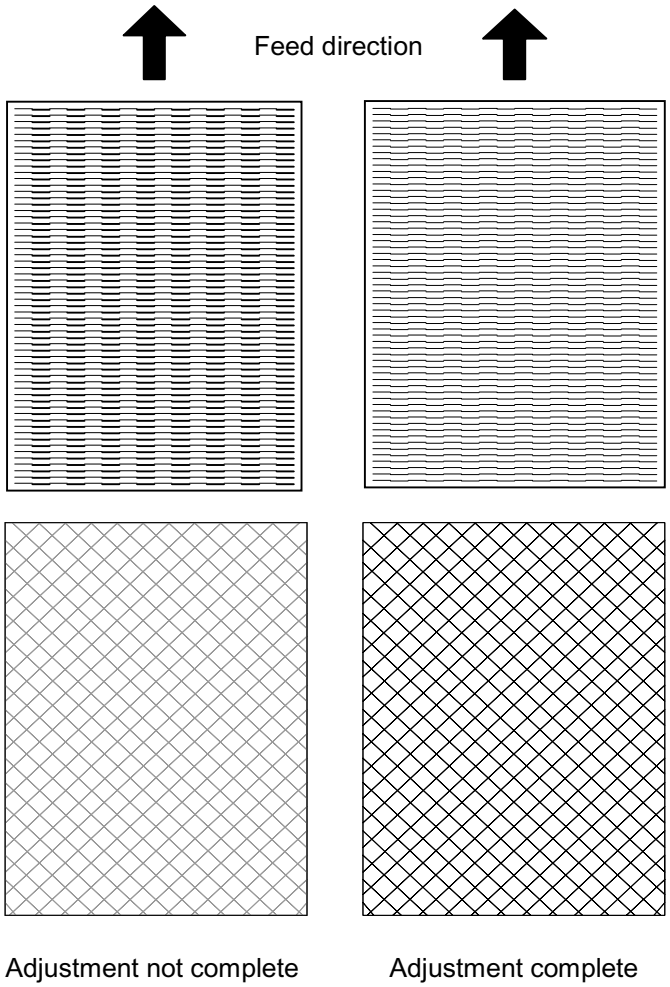
Laser beam pitch adjustment

1. Print out the following test patterns – cross-stitch pattern and grid pattern.
2. Check these test patterns. If the laser beam pitch is not correct, the images are as follows.
   - Cross-stitch pattern: Vertical black strips seem to appear.
   - Grid pattern: The density of the diagonal lines is light or the lines have disappeared.
3. Adjust the LD unit holder position: Tighten or loosen the screw [C] (see the previous page) until the printout appears as follows.
   - Cross-stitch pattern: The thin lines are of uniform thickness (no striping effect should appear on the printout).
   - Grid pattern: The diagonal lines appear clearly and are of normal density.



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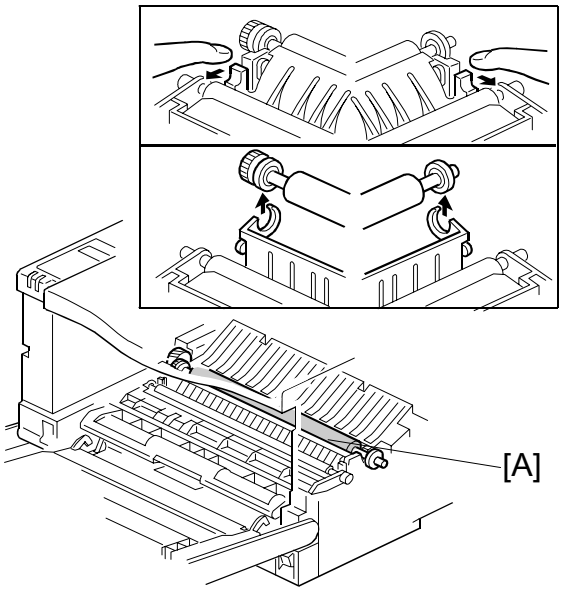
3.4 TRANSFER ROLLER

Cartridge

[A]: Transfer roller

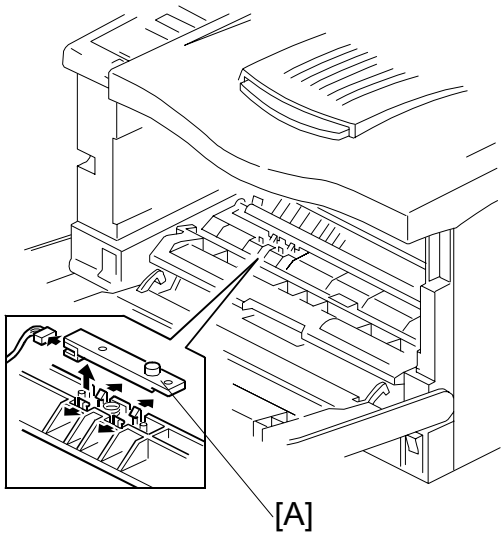
NOTE: Do not touch the transfer roller surface.



3.5 TONER END SENSOR

Cartridge

[A]: Toner end sensor (4 hooks, x1)



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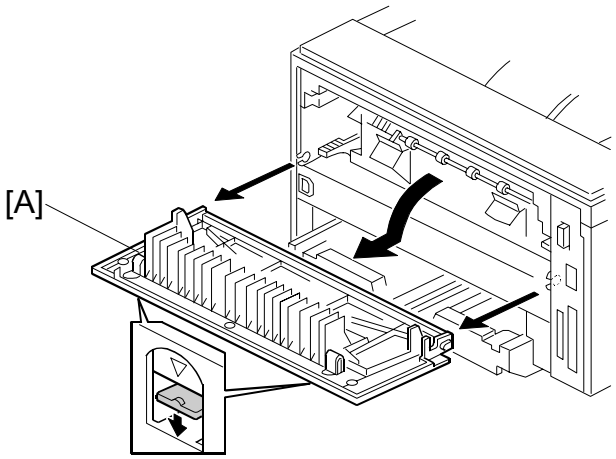
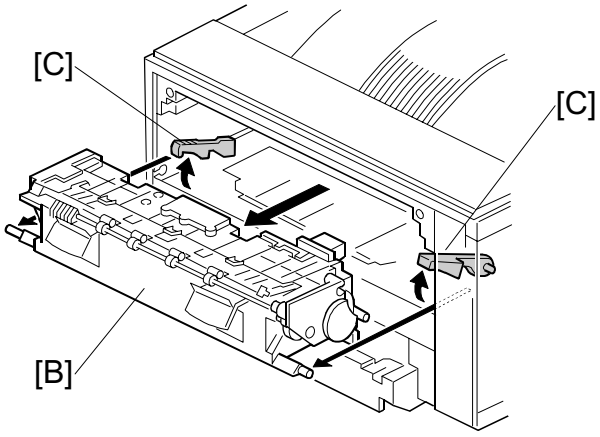
3.6 FUSING

3.6.1 FUSING UNIT

⚠CAUTION
Allow time for the unit to cool before doing the following procedure.





[A]: Exit cover
[B]: Fusing unit (lift hooks [C])

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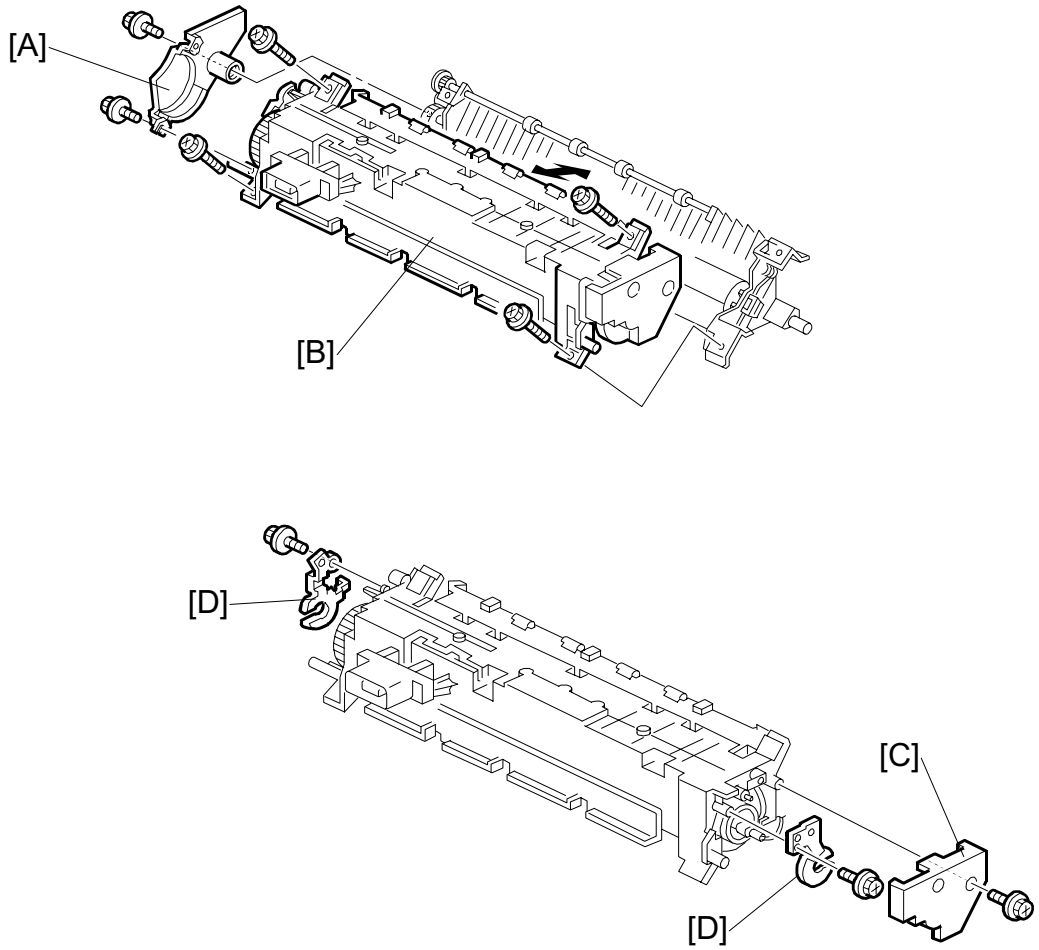
3.6.2 HOT ROLLER AND FUSING LAMP



Fusing unit (☛ 3.6.1 Fusing Unit)

[A]: Right cover (☞ x2)
[B]: Upper fusing unit assembly (☞ x4)
[C]: Left cover (☞ x1)
[D]: Lamp holders (☞ x1 each)

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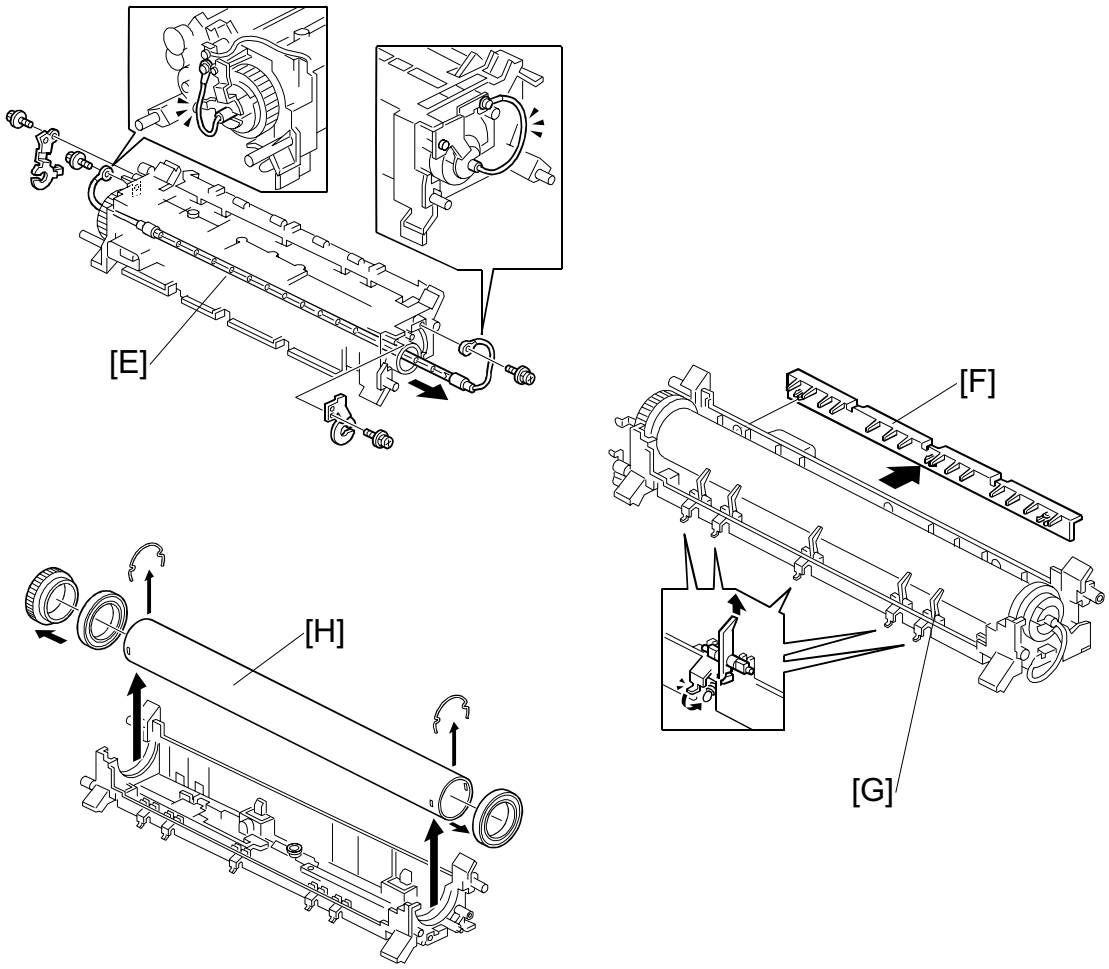

[E]: Fusing lamp (🔩 x2)
NOTE: The shorter cable must be at the hot roller gear side.
[F]: Guide plate (3 hooks)
[G]: Hot roller strippers (1 spring each)
[H]: Hot roller (2 C-rings, 1 gear, 2 bushings).
NOTE: Before installing the new hot roller, peel off 3 cm (1 inch) from both ends of the protective sheet on the new roller.
Remove protective sheet.

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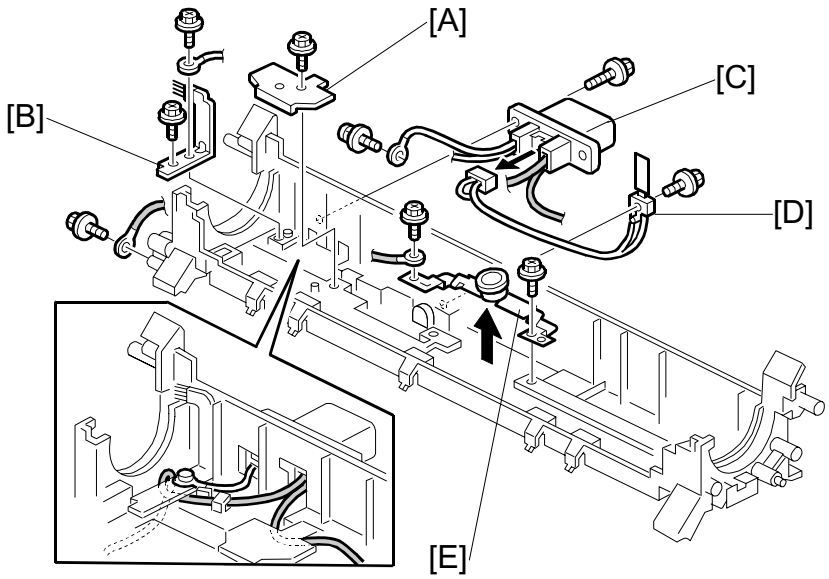
3.6.3 THERMISTOR AND THERMOSTAT



Hot roller (☛ 3.6.2 Hot Roller and Fusing Lamp)

[A]: Wire cover (x1)
[B]: Grounding plate (x1, 1 wire)
[C]: Fusing unit connector (x3, x1))
[D]: Thermistor (x1)
[E]: Thermostat (x1)

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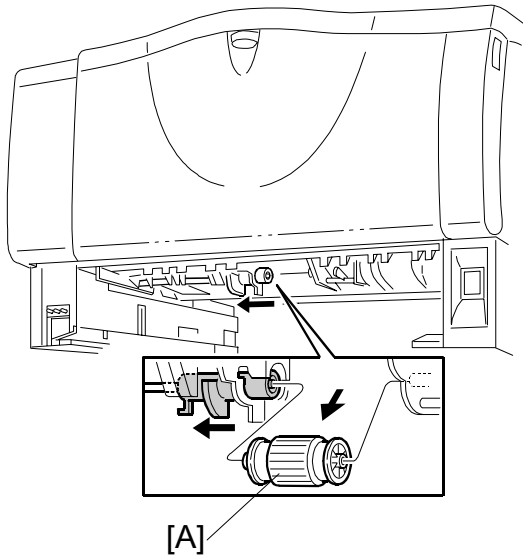
3.7 PAPER FEED

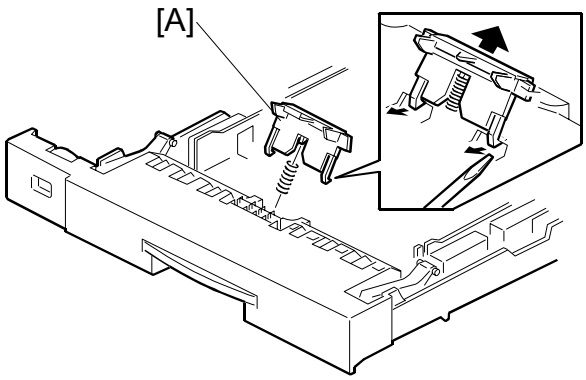
3.7.1 FEED ROLLER

Paper Tray
[A]: Paper feed roller



3.7.2 FRICTION PAD

Paper Tray
[A]: Friction pad (2 hooks, 1 spring)



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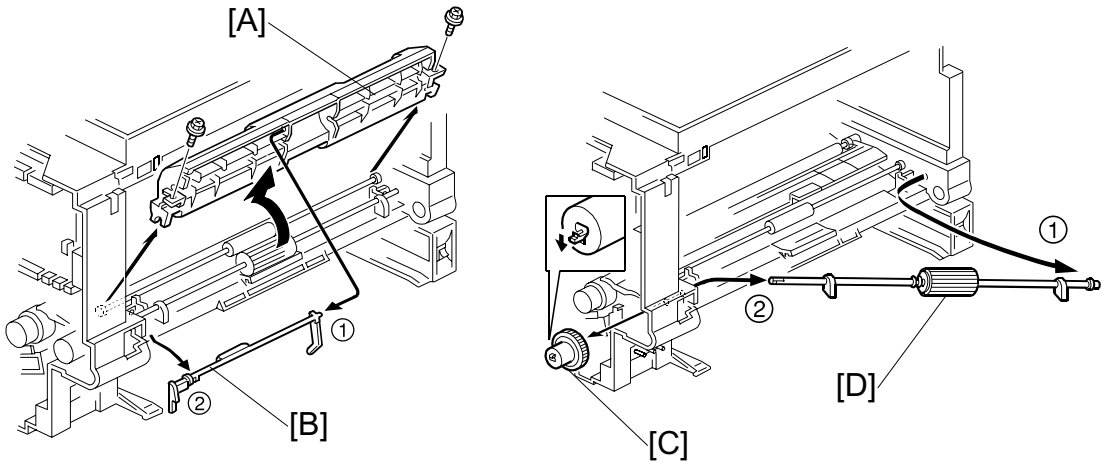
3.8 BY-PASS TRAY

3.8.1 BY-PASS TRAY UNIT AND BY-PASS FEED ROLLER



By-pass tray unit (☛ 3.2 Exterior Covers)

Front cover (☛ 3.2 Exterior Covers)

Cartridge

[A]: Paper guide (x2)
[B]: Actuator
[C]: Gear (1 hook)
[D]: By-pass feed roller

When reinstalling the paper guide:

1) Set the paper guide on the bushing.
2) Install the left part of the actuator in the machine.
3) Install the right part of the actuator on the paper guide.
4) Install the paper guide.
5) Make sure that the actuator moves smoothly.

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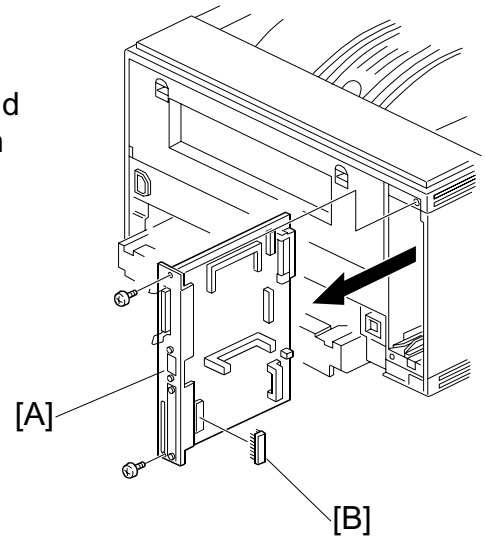
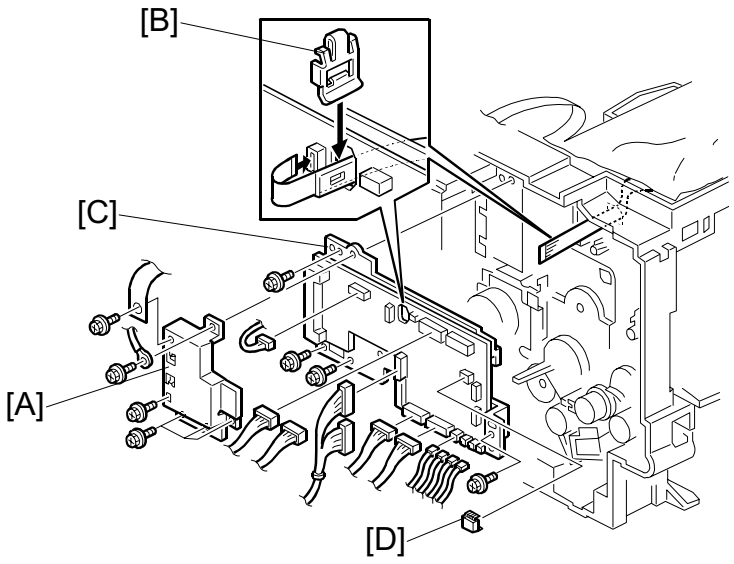
3.9 PRINTER CONTROLLER BOARD

[A]: Printer controller board (🔩 x2)
NOTE: Remove the NVRAM [B] from the old printer controller board and put it on the new board.



3.10 ENGINE BOARD



Left cover (☛ 3.2 Exterior Covers)

Printer controller board (☛ 3.9 Printer Controller Board)

[A]: Bracket (🔩 x6, 1 grounding wire)
NOTE: The sheet is used for 230V machine only.
[B]: Clip
[C]: Engine board (🔩 x5, all connectors)
NOTE: Remove the NVRAM [D] from the old engine board and put it on the new board.

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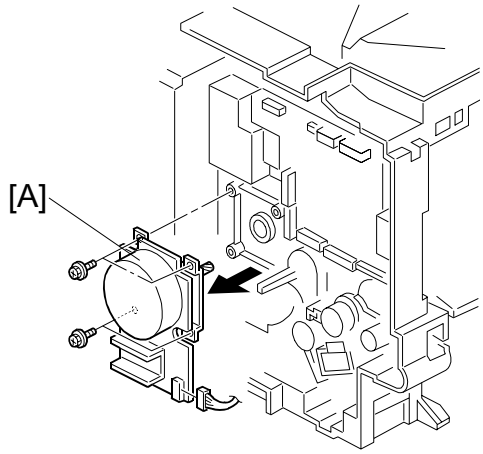
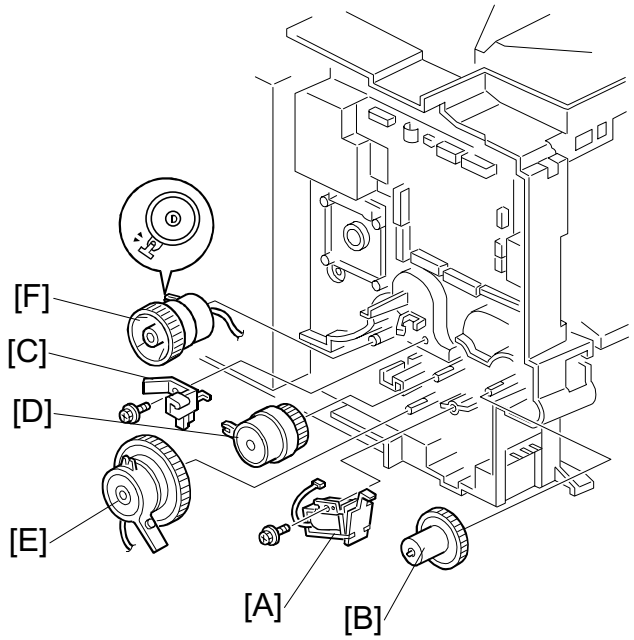
3.11 MAIN MOTOR



Left cover (☛ 3.2 Exterior Covers)

[A]: Main motor (x4, x1)

3.12 SOLENOIDS AND CLUTCHES



Left cover (☛ 3.2 Exterior Covers)

[A]: By-pass feed solenoid (x1, x1)

[B]: Gear (1 hook)

[C]: Stopper (x1)

[D]: Relay clutch (1 hook, x1)

[E]: Paper feed clutch (1 hook, x1)

Main motor (☛ 3.11 Main Motor)

[F]: Registration clutch (x1, x1)

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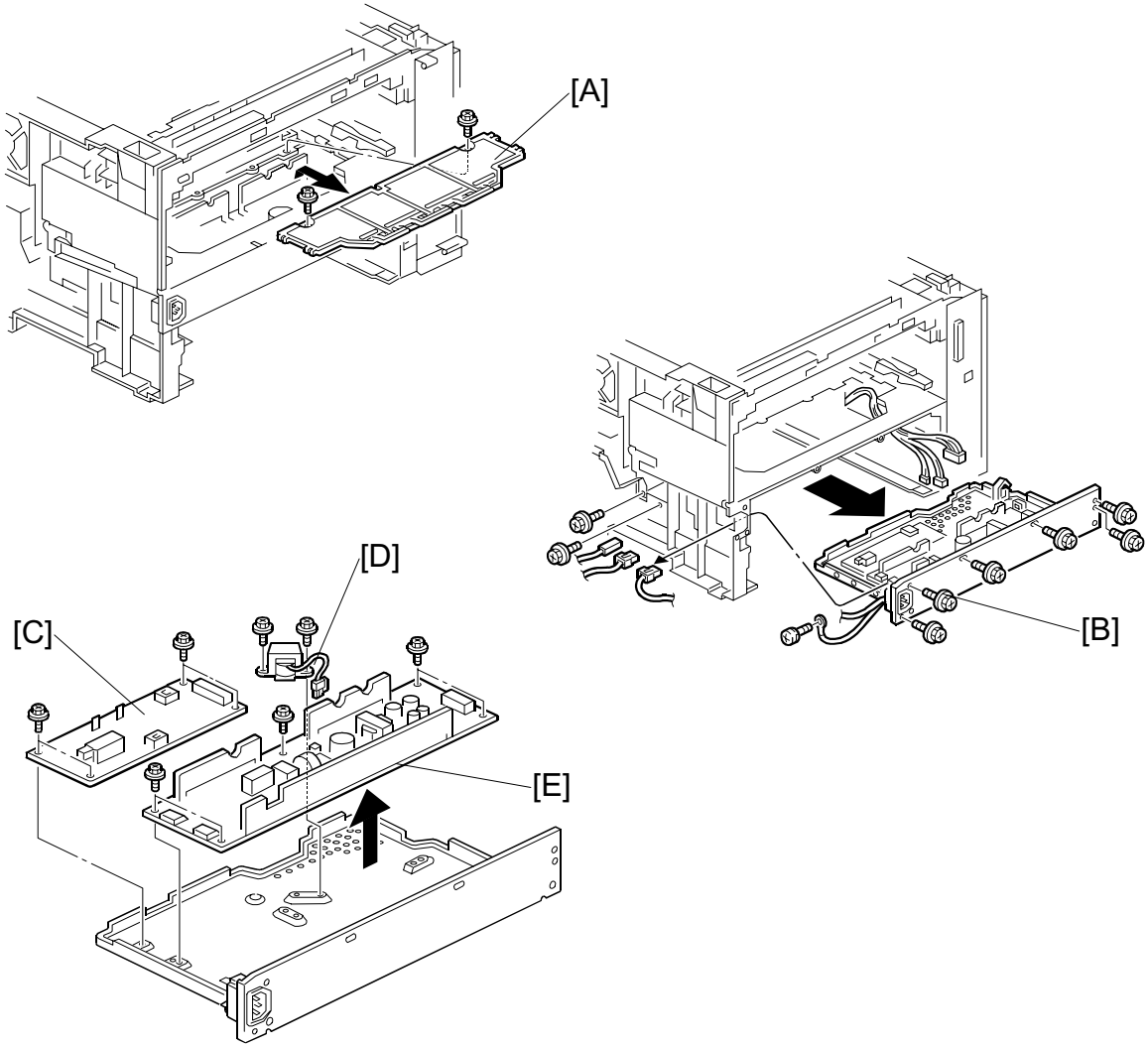
3.13 POWER SUPPLY UNIT AND HIGH VOLTAGE SUPPLY BOARD



Left cover (☛ 3.2 Exterior Covers)

Fusing unit (☛ 3.6.1 Fusing Unit)

[A]: PSU cover (🔩 x2)
[B]: PSU assembly (🔩 x9, all connectors)
[C]: High voltage supply board (🔩 x4)
[D]: **230V machine only:** Choke coil (🔩 x2, ✋ x1)
[E]: Power supply unit (🔩 x5)

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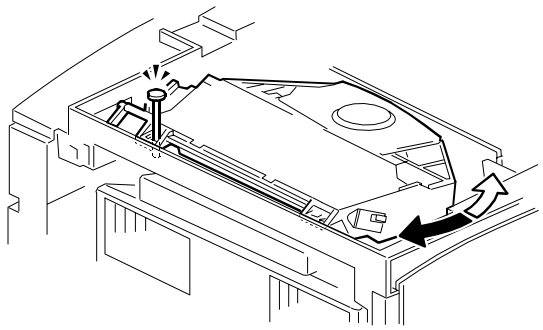
3.14 IMAGE ADJUSTMENT

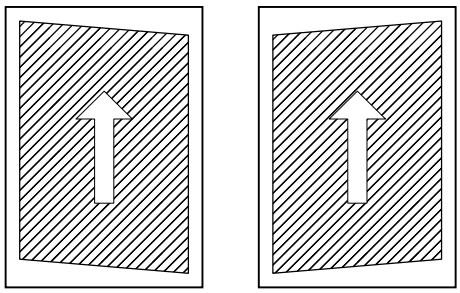
3.14.1 REGISTRATION ADJUSTMENT

The registration is adjusted using the user mode; “Maintenance-Registration-Adjustment”

3.14.2 PARALLELOGRAM IMAGE ADJUSTMENT

NOTE: Use the scanner positioning pin (P/N: A0069104) for the adjustment.
Do the following procedure if a parallelogram is printed while adjusting the printing registration using a trimming pattern.





(a) (b)

1. Remove the upper cover (☛ 3.2 Exterior Covers)
2. Set a positioning pin to one of the hole (The above illustration explains when the image (a) is printed out).
3. Loosen four screws and move the laser unit.
4. Tighten the laser unit.
5. Print the trimming area pattern to check the image. If it is still the same, repeat step 3 to 5.

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TROUBLESHOOTING

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4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are 2 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative. The machine cannot be operated at all.	***Enter engine service mode (Fusing Error Clear) and press "#".***
B	The SC can be reset by turning the operation switch off and on, if the SC was caused by a sensor error.	Turn the main power switch off and on.

NOTE: 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.

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4.1.2 SC CODE DESCRIPTIONS

Code No.		Symptom	Possible Cause
302	B	Charge roller current leak A charge roller current leak signal is detected.	• Cartridge (charge roller) defective • High voltage supply board defective • Poor cartridge connection
320	B	Polygon motor error The polygon motor does not reach its operating speed within 10 seconds after the polygon motor on signal, or the lock signal is not detected for more than a certain time during operation.	• Polygon motor • Polygon motor cable
322	B	1st laser synchronization error The laser synchronization detector cannot detect the laser synchronization signal for more than 5 consecutive 100 ms intervals.	• Laser synchronization detector board out of position • Laser synchronization detector board or cable defective • Laser synchronization mirror out of position • LD unit defective • Engine board defective
323	B	LD drive current exceeded The LD driver detects this error for more than 500 ms.	• LD unit defective
326	B	2nd laser synchronization error The 1st LD1 is already on, but the laser synchronization detector cannot detect the laser synchronization signal from the 2nd LD for more than 5 consecutive 100 ms intervals.	• Laser synchronization detector board out of position • LD unit defective • Engine board defective
391	B	Development bias leak A development bias leak signal is detected.	• High voltage supply board defective • Poor cartridge connection
500	B	Main motor lock A main motor lock signal is not detected for more than 700 ms after the main motor starts to rotate, or the lock signal is not detected for more than a certain time during rotation after the last signal.	• Main motor defective • Too much load on the drive mechanism
541	A	Unstable fusing temperature During warm-up, the fusing temperature rises by less than 20 °C during 11 seconds. The fusing temperature detected by the thermistor was 0 °C 5 seconds after the fusing relay was turned on.	• Thermistor defective • Fusing lamp open • Fusing thermostat open • Power supply board defective • Poor connection of the fusing unit

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Code No.		Symptom	Possible Cause
542	A	Fusing temperature warm-up error The fusing temperature does not reach more than 80 °C 17.5 seconds after the main switch is turned on.	• Thermistor defective • Fusing lamp open • Fusing thermostat open • Power supply board defective • Poor connection of the fusing unit
543	A	Fusing overheat error A fusing temperature of over 245 °C is detected for 1 second by the fusing thermistor. A fusing temperature of over 235 °C is detected for 1 second after the fusing lamp has been turned off.	• Fusing thermistor defective • Power supply board defective
545	A	Fusing lamp stays on The fusing lamp stays on more than 12 seconds after the main motor has been turned off.	• Fusing thermistor defective • Power supply board defective • Poor connection of the fusing unit
546	A	Unstable fusing temperature During standby, within 500 ms, the fusing temperature goes below 60 °C twice or over 60 °C three times. Within 1 minute, a 60 °C increase or decrease in fusing temperature is detected during five different one-second intervals.	• Fusing thermistor defective • Power supply board defective • Poor connection of the fusing unit
547	B	Zero cross signal malfunction Zero cross signals are not detected within 5 seconds.	• Power supply board defective • Poor mains power supply condition
610	B	Communication error - duplex unit The engine board cannot communicate with the duplex unit.	• Poor connection between engine board and duplex unit • Engine board defective • Duplex control board defective
650	B	Communication error - GAVD • The engine board detects an unknown device on the I^2C I/F bus (internal bus on the engine control board). • The engine board detects an I^2C I/F bus error.	• Engine board defective
651	B	Communication error - FCI • The engine board detects an unknown device on the I^2C I/F bus (internal bus on the engine control board). • The engine board detects an I^2C I/F bus error.	• Engine board defective
726	B	Shift tray motor error Tray shift did not finish within a certain time after the shift motor turned on.	• Shift motor defective • Shift tray: Left shift sensor or right shift sensor defective

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4.2 CONTROLLER ERROR

The following table describes the controller error codes. These codes are displayed at power-on, or after the power-on self-test, if an error occurs.
Please refer to section 5.3 for details of the power-on self-test.

Code	Description	Required Action
640	Engine to controller communication error.	• Check the connection between the controller and the engine board. • Replace the engine board if the error is consistent. • Replace the controller if the error is consistent.
641	Engine to controller communication error (no answer).	• Check the connection between the controller and the engine board. • Replace the engine board if the error is consistent.
800	Video data error	• Check the connection between the controller and the engine board. • Replace the engine board if the error is consistent.
820	Controller CPU error	• Replace the controller if the error is consistent.
821	CPU and ASIC timer error	• Turn off the machine and turn it back on. • Replace the controller if the error is consistent.
822	HDD timeout error	• Check the connection between the HDD and the controller • Replace the HDD if the error is consistent.
823	NIB self test error	• Turn off the machine and turn it back on. • Check the connection between the NIB and the controller. • Replace the NIB if the error is frequent.
824	NVRAM error	• Replace the NVRAM if the error is consistent.
827	SDRAM error	• Replace the controller if the error is consistent.
828	Flash ROM error	• Replace the controller if the error is consistent.
829	Optional RAM error	• Check the connection of the optional memory. • Replace the optional memory if the error is consistent.
835	Parallel interface error	• Replace the controller if the error is consistent.
836	Font ROM error	• Not used for this model.
837	Optional font ROM error	• Not used for this model.
838	Clock generator error	• Replace the controller if the error is consistent.
850	NIB interface error	• Replace the controller if the error is consistent.
851	IEEE1394 interface error	• Replace the controller if the error is consistent.

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Code	Description	Required Action
860	HDD start-up error	• Turn off the machine and turn it back on. • Check the connection between the HDD and the controller. • Replace the HDD if the error is consistent.
862	HDD damaged cluster error	• Replace the HDD if the error is consistent.
863	HDD data unable to read	
864	HDD data access error	
865	HDD access error	
900	Controller counter error	• Replace the NVRAM if the error is consistent.
999	Software update error	• Try downloading the controller software again.

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4.3 ELECTRICAL COMPONENT DEFECTS

4.3.1 SENSORS

Component	CN	Condition	Symptom
Paper Exit	6-B2	Open	The Paper Jam indicator will light whenever a print is made.
		Shorted	The Paper Jam indicator lights even if there is no paper.
Paper Overflow	6-B5	Open	The paper overflow message is not displayed even when a paper overflow condition exists.
		Shorted	The paper overflow message is displayed.
Registration	16-A2	Open	The Paper Jam indicator will light whenever a print is made.
		Shorted	The Paper Jam indicator lights even if there is no paper.
1st Paper End	16-A5	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
		Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray. Misfeed is indicated when paper supply runs out.
1st Paper Height	16-A8	Open	The machine cannot determine the paper near-end condition properly.
		Shorted	
Toner End	16-A12	High	Toner near-end (toner end) is not detected.
		Low	The add toner message is displayed.

NOTE: The CN numbers describe the connector number on the engine board.

4.3.2 SWITCHES

Component	CN	Condition	Symptom
Main	272-1,3 (PSU 120V) 270-1,2 (PSU 230V)	Open	The machine does not turn on.
		Shorted	The machine does not turn off.
Front Cover Safety	9-1	Open	The Front Cover Open message is not displayed even if the front cover is opened.
		Shorted	The Front Cover Open message is displayed even if the front cover is closed.
Rear Cover Safety	9-3 5-3	Open	The Rear Cover Open message is not displayed even if the rear cover or paper exit cover is opened.
		Shorted	The Rear Cover Open message is displayed even if the rear cover or paper exit cover is closed.

NOTE: The CN numbers describe the connector number on the engine board (except for the main switch).

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4.4 BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom when turning on the main switch
	115 V	220 - 240 V	
Power Supply Board			
FU1	15 A/125 V	----	No power
FU2	6.3 A/250 V	3.15 A/250 V	No power
FU3	5 A/125 V	5 A/250V	No power
FU4	5 A/125 V	5 A/250V	No power (LEDs flash once)

4.5 LEDS

No LEDs are used for this model (except for the NIB - refer to section 6.7).

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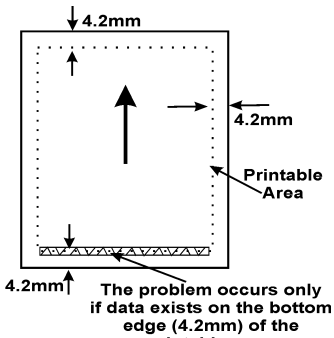
4.6 FIRMWARE HISTORY

4.6.1 G056/G058 FIRMWARE MODIFICATION HISTORY

G056/G058 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**PART NUMBER**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• First Mass Production of Machine	G0565920 **B**	1 st Mass Production	1.01
• Firmware modified to make corrections for the German language.	G0565920 **C**	November 2000 production	1.02
• Does not exist in the field	G0565920 **D**	N/A	1.03
• Does not exist in the field	G0565920 **E**	N/A	1.04
1. Firmware modified to improve print quality when image data is printed using the PCL6 driver. **NOTE:** This occurs only in the following condition. • When printing image data • When using the PCL6 driver 2. New feature added in the user mode. "Curl Prevention" mode is added in the user mode. (Curl Prevention: User mode/ Maintenance). Please note that the function of this mode is the same as the "Curl Control" in the printer engine service mode. It lowers the fusing temperature to prevent paper from curling. Advise customer to use this mode when paper jam occurs during duplex rear side printing. **NOTE:** When this mode is switched on, the "Curl Control" in the service mode is also switched on. **Symptom:** In PCL printing, if data exists over the bottom edge of the printable area, the machine freezes, displaying "Processing" and operation will no longer be possible. **Condition:** Printer driver is not being used Print data exists on the bottom edge of the printable area (at 4.2mm)  **Action:** Update the controller firmware.	G0565920 **F**	December 2000 production	1.05

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G056/G058 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**PART NUMBER**	**SERIAL NUMBER**	**FIRMWARE VERSION**
⇒ Corrects the following: • In rare cases with graphic images, a dark band(s) appears or part of the image becomes black on prints.	G0565920 **G**	Does not exist in the field	1.06
Corrects the following: • Modified so the machine can be used with Axis print servers. • Modified to correct Polish and Portuguese langauage errors.	G0565920 **J**	February 2001 production	1.08

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SERVICE TABLES

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5. SERVICE TABLES

5.1 SERVICE PROGRAM MODE

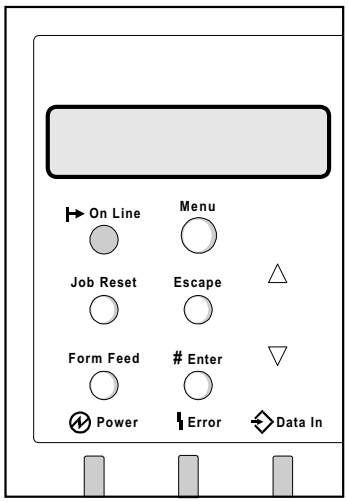
⚠CAUTION

Before accessing the service menu, do the following:

Confirm that there is no print data in the printer buffer (the Data In LED must not be lit or blinking).
If there is some data in the buffer, wait until all data has been printed.

5.1.1 ENABLING AND DISABLING SERVICE PROGRAM MODE

Entering the Service Mode



There are two ways to enter the service mode.

Method 1: Turn the machine on while pressing the "On Line" key and "Escape" key together until "1. Service Menu1" appears on the display.

NOTE: If you switch the machine off, any jobs stored on the hard disk using the sample print and protected print features will be deleted. Check first with the user tools to see if there are any jobs stored with these features (Menu key - Sample Print, or Protected Print).

Method 2: Press the "Up/Down arrow" keys together for about 5 seconds, then press the "Enter" key.
"1. Service Menu1" appears on the display.

NOTE: The machine automatically goes off line when you enter the service mode.

Accessing the Required Program

Use the "Up/Down arrow" keys to scroll through the menu listing.

1. Service Menu: Controller service modes
2. Engine Mainte: Engine service modes
3: End: Exit service mode

To select an item, press the "Enter" key. Then the sub-menu will appear.
Scroll through the sub menu items using the "Up/Down arrow" keys.
To go back to a higher level, press the "Escape" key.

Service Tables

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Inputting a Value or Setting for a Service Program

Enter the required program mode as explained above. The setting appearing on the display is the current setting.
Select the required setting using the “Up/Down arrow” keys, then press the “Enter” key. The previous value remains if the “Enter” key is not pressed.

Exiting Service Mode

Select “3. End” from the service mode main menu, then press the “Enter” key.

NOTE: To make the settings effective, turn the main switch off and on after exiting service mode.

5.2 PRINTER CONTROLLER SERVICE MODE

5.2.1 SERVICE MODE MENU (‘1. SERVICE MENU’)

Service Mode	Description	Function
Bit Switch	Bit switch settings	Adjusts bit switch settings. ☛ **5.2.2 Bit Switch Programming**
Clear Setting	Initializes the system settings	Initializes settings in the “System” menu of the user mode.
Service Print	Controller summary print	Prints the service summary sheet (a summary of all the controller settings).
Disp Version	Display controller	Displays the version of the controller firmware.

5.2.2 BIT SWITCH PROGRAMMING

NOTE: Currently, the bit switches are not being used.

1. Enter the SP mode, select “Service Menu”, then press [Enter] twice.

```
Service Menu
BitSW
```

2. Select #1, #2, #3, or #4 for the desired bit switch, then press [Enter].
   - [▲] [▼]: Move to the next switch.

```
BitSW
<BitSW#1>
```

3. Adjust the bit switch using the following keys.
   - [▲] [▼]: Move to the next bit.
   - [Escape]: Exit without saving changes.
   - [Enter]: Exit and save changes.

   NOTE: The left digit on the display is bit 7 and the right digit is bit 0.

```
Sw#1  00000000
Bit0         _
```

4. Press [Enter] to save changes and exit.

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⇒ *Bit Switch 1*

Bit Switch 01 - Not used (do not change any of these settings)

Bit Switch 2

Bit Switch 02		
No	**Description**	**Function**
0-2	Not used	Do not change the setting.
3	PDL Sniffing	See PUB(C)-051 for details
4	Treatment of the last page when printing a job with an odd number of pages using the duplex unit **0:** (default): Last page not fed through the duplex unit 1: Last page fed through the duplex unit	**0:** The last page is not fed through the duplex unit, so the last page faces the opposite way from other pages in the job. 1: The last page is fed through the duplex unit, so the last page faces the same way as other pages of the job. Set this switch to “1” when the customer wishes the last page to be facing the same way as the other pages.
5-7	Not used	Do not change the setting.

Bit Switch 3

Bit Switch 03		
No	**Description**	**Function**
0	PS Fonts Download	See PUB(C)-045 for details
1-7	Not used	Do not change the setting.

Bit Switch 4

Bit Switch 04 - Not used (do not change any of these settings)

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5.3 PRINTER ENGINE SERVICE MODE

5.3.1 SERVICE MODE TABLE ('2. ENGINE MAINTE')

Service Mode	Description	Function	Setting
Regist sag	Paper feed timing	Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.)	-8.0 to +8.0 2 mm/step **0 mm**
Fusing Control	Fusing power control	Selects whether the fusing power control is on/off or phase control. Use "Phase" control if the room lights flicker when the fusing lamp starts.	**Normal** (US) **Phase** (Europe/Asia)
Fusing Temp	Fusing temperature adjustment	Adjusts the fusing temperature for printing. **Normally, do not change the setting.**	100 to 200 10°C/step **170°C**
Fusing T Dis	Fusing temperature display	Displays the fusing temperature.	
OHP Clutch Rt	Bypass paper feed roller rotation for transparencies	Selects the number of rotations for the bypass tray feed roller when the paper type is set to "Transparencies." This is to avoid jams when transparencies are being used.	**1 (1 rotation)** 2 (2 rotations)
Fusing Start	Initial fusing setting	Roller turn: Warms up the fusing unit for 20 s at power on or when the machine warms up from the energy saver mode. Normal: There is no 20 s warm-up period Select 'roller turn' to avoid poor fusing in a low temperature environment.	**Normal** Roller turn
Curl Control	Low temperature fusing	Lowers the fusing temperature (to 150°C) to prevent thin paper from curling. Use this mode only when a paper jam occurs during duplex rear side printing.	**Normal** Curl control
Charge Rol Bias	Charge roller voltage adjustment	Adjusts the charge roller voltage. **Normally, do not change the setting.**	1000 to 2000 10 V/step **1650V**
Mainscan mag	Main scan magnification adjustment	Adjusts the main scan magnification.	-0.5 to +0.5 0.1 %/step **0 %**
Subscan mag	Sub scan magnification adjustment	Adjusts the sub scan magnification.	-0.5 to +0.5 0.1 %/step **0 %**
Developer Bias	Development Bias Adjustment	Adjusts the development bias for printing. **Normally, do not change the setting.**	-800 to -200 10 V/step **-700V**
Toner End Count	Number of prints after toner near-end is detected	Adjusts the number of prints the machine can print after it detects toner near-end.	50 to 200 50 sheets/step **200 sheets**

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Service Mode	Description	Function	Setting
Transfer curr	Transfer current correction	Adjusts the correction current applied to the transfer roller.	0: –2 μA **1: 0 μA** 2: +2 μA 3: +4 μA
Test Pattern	Test pattern selection	Use this to select and print a test pattern. This machine has the following patterns. • No specified • Checkered flag • Cross-stitch • 1-dot argyle • 2-dot argyle • 2-dot trim • 1-dot grid • 2-dot grid Reset this to 0 after printing the test pattern.	**No pattern**
Thermistor adj	Thermistor adjustment	Charge roller voltage and transfer current automatic adjustment. The machine automatically adjusts these parameters in response to the temperature within the machine. **Normally, do not change the setting.**	**On** Off
Toner end clear	Toner end clear (engine)	Clears the toner end counter in the engine board. **Note:** This mode is not used in this machine.	
Waste Toner Cnt	Waste toner count display	Displays the waste toner counter in the engine board.	
Effective info	Cartridge ID chip features that are used	Selects which of the cartridge ID chip functions are enabled. • Not used: All items are not used • **All used:** All items are used • Normal Mode: Cartridge detection/type • Cartridge: Cartridge detection only	
Cartridge lmt	Number of prints for a single cartridge	Adjusts the number of prints the machine can make after a new cartridge is detected. **Do not use a higher value than 30 k.**	15k prints 20k prints 25k prints **30k prints** 35k prints 40k prints
Waste Lim Stop	Action when toner end is detected	Determines whether the machine stops printing after the cartridge counter reaches the above limit.	**Yes (Stop printing)** No (Do not stop)

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Service Mode	Description	Function	Setting
Toner end sensor	Toner near-end threshold	Threshold adjustment for the toner end sensor. **Normally, do not change the setting.** **Important:** Turn the main switch off/on after changing this setting.	200 to 1000 100 ms/step 200 ms
Cartridge info	Toner cartridge information	Displays toner cartridge information.	
A3/11x17 Count	A3/DLT double count	Specifies whether the counter is doubled for A3/11" x 17" paper. If “Yes” is selected, the total counter counts up twice when A3/11" x 17" paper is used.	Yes (double count) **No** **(single count)**
Memory clr	Memory clear	Resets software counters and returns modes and settings to their defaults. • Memory all clear: Clears all data • Eng: Clears the printer engine settings (See Note 1 for a list of the settings erased) • SCS: Clears system settings (See Note 2 for a list of the settings erased) • PRT: Clears user mode system settings (See Note 3 for a list of the settings erased) • NCS: Clears the items listed in the “Host Interface” section of the Configuration page.	
Free run	Free run	The machine performs a free run. Press [Enter] to start. Press [Enter] to stop. Please note that the machine will not stop immediately after the [Enter] key is pressed.	
Input check	Input check mode	Displays signals received from sensors and switches. See the “Input Check” section for details.	
Output check	Output check mode	Turns on electrical components individually for test purposes. See the “Output Check” section for details.	
Fusing err clr	SC code reset	Resets a service call condition (for fusing unit errors). After using this SP mode, turn the main switch off and on.	
Serial number	Serial number programming	Use to input the machine serial number. (This is normally done at the factory.)	
Service TEL	Service station number programming	Program the service station number. The number is printed on the meter-charge counter report when the meter-charge mode is turned on.	
HDD Init	Initializes the HDD	Initializes the hard disk. Use this only if there is a hard disk error.	
Prog Checksum	---	Designers’ use only	

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Service Mode	Description	Function	Setting
Test Print	Engine test pattern print	Prints the test pattern that was selected in the “Test Pattern” mode.	
Plug/Play	Plug & Play name selection	Select the plug & play name.	
Meter charge	Meter-charge mode	Enable or disable meter-charge mode. **Important:** Turn the main switch off/on after changing this setting. **Meter charge mode enabled:** • ‘Replace Maintenance Kit’ is <u>not</u> displayed on the operation panel when the PM counter runs out (the technician replaces the maintenance kit items) • The meter charge counter is shown immediately after the Menu key is pressed. • The technician must reset the PM counter after replacing the fusing unit. **Meter charge mode disabled:** • ‘Replace Maintenance Kit’ <u>is</u> displayed on the operation panel when the PM counter runs out (the user replaces the maintenance kit items) • The meter charge counter is not shown when the Menu key is pressed. • The PM counter resets automatically after the user replaces the fusing unit.	Yes (Enabled) **No (Disabled)**
Service Report	Prints engine summary	Prints the engine summary sheet.	
Operation time	Total engine rotation cycle	Displays the total number of engine rotation cycles made so far. **Note:** One cycle is calculated as 3.7 s of drum rotation. However, this counter also includes idle rotations. **This counter is not reset at PM.**	
Total count C	Controller total counter display	Displays the controller total counter. This counter is used for meter charge, and it appears when the user presses the Menu key (if meter charge mode is enabled). It does not count up when certain items, such as service reports, are printed (see section 6.6.1. for a complete list of conditions).	
Disp ROM ver	ROM version display	Displays the firmware version (system, engine, and duplex).	

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Service Mode	Description	Function	Setting
PM Counter	PM counter display	Displays the PM counter. This is not a page counter. It estimates the page count using the engine rotation cycle count. It counts up one page when the engine has made the average number of rotations that is required for one page of a three-page job.	
PM Counter reset	Resets the PM counter	Resets the PM counter. **Important:** If a technician replaces the PM items, reset this counter after replacing these items.	
Diag result	Diagnostic result display	Displays the controller self-diagnostic result. See sections 5.5 and 5.6 for details.	
Assert Info	---	Designers' use only	
Usercode clr	User code clear	Clears all the user code data from the controller board memory.	
Total counter	Engine total counter display	Displays the engine total counter. It counts up for all prints, including service reports.	

Memory Clear

The following tables list the items that are cleared.

Note 1: Eng (Engine settings)

Setting Name	User or Service Mode
Sub scan registration	User/Maintenance/Registration
Main scan registration	
Image Density	User/Maintenance/
Regist sag	Service/Printer engine
Fusing control	
Fusing temp	
OHP Clutch Rt	
Fusing start	
Curl control	
Charge Rol Bias	
Main scan mag	
Subs can mag	
Developer bias	
Toner end count	
Transfer curr	
Thermistor adj	
Effective info	
Catridge lmt	
Waste Lim Stop	
Toner end sensor	
Meter charge	

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Note 2: SCS (Clears system settings)

Setting Name	User or Service Mode
Language	User/
Paper Type	User/Paper Input/
Tray Paper Type	
Manually programmed paper size	
Tray Lock	
Energy saver timer	User/System/
A3/11x17 Count	Service/Printer engine
Service TEL	
User code counter	---

Note 3: PRT (Clears system settings)

Setting Name	User or Service Mode
Tray Priority	User/Paper Input
Misfeed Recovery	User/System
Print Error Report	
Auto Continue	
Memory Overflow	
Output Tray	
Job Separation	
Memory usage	

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5.3.2 INPUT CHECK TABLE

Number	Description	Reading	
		00	01
1	Front cover safety switch	Closed	Opened (Pushed)
2	Main motor lock	Off	On
3	Polygon motor lock	Off	On
4	Not used		
5	Upper rear cover (duplex cover)	Closed	Opened (Pushed)
6	Duplex unit installed	Not installed	Installed
7	Fusing unit installed	Not installed	Installed
8	New fusing unit detection	Used fusing unit	New fusing unit
9-10	Not used		
11	Paper overflow sensor	Paper not detected	Paper detected
12-15	Not used		
16	Registration sensor	Paper not detected	Paper detected
17	Paper exit sensor	Paper not detected	Paper detected
18	Duplex transport sensor (optional duplex unit)	Paper not detected	Paper detected
19	Duplex entrance sensor (optional duplex unit)	Paper not detected	Paper detected
20	Duplex exit sensor (optional duplex unit)	Paper not detected	Paper detected
21	Bypass feed paper sensor	Paper detected	Paper not detected
22	Paper end sensor - standard cassette	Paper detected	Paper not detected
23	Paper size sensor - standard cassette	See table 1	
24	Paper height sensor - standard cassette	See table 3	
25	Not used		
26	Paper end sensor - optional paper tray upper cassette	Paper detected	Paper not detected
27-28	Not used		
29	Paper end sensor - optional paper tray lower cassette	Paper detected	Paper not detected
30	Paper size sensor - optional paper tray lower cassette	See table 2	
31	Paper height sensor - optional paper tray lower cassette	See table 4	
32	Upper paper transport sensor (optional paper feed unit)	Paper not detected	Paper detected
33	Lower paper transport sensor (optional paper feed unit)	Paper not detected	Paper detected
34	Paper size sensor - optional paper tray upper cassette	See table 2	
35	Not used		
36	Paper height sensor - optional paper tray upper cassette	See table 4	
37-40	Not used		
41	Paper output tray cover sensor	Closed	Opened (Interrupted)

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Number	Description	Reading	
		00	01
42	Shift tray paper transport sensor	Paper not detected	Paper detected
43	Shift tray at right (optional 1-bin shift tray)	Off	On (Interrupted)
44	Shift tray at left (optional 1-bin shift tray)	Off	On (Interrupted)
45	Paper sensor - 1st bin (optional 4-bin mailbox)	Paper not detected	Paper detected
46	Paper overflow sensor - 1st bin (optional 4-bin mailbox)	Paper not detected	Paper detected
47	Paper sensor - 2nd bin (optional 4-bin mailbox)	Paper not detected	Paper detected
48	Paper overflow sensor - 2nd bin (optional 4-bin mailbox)	Paper not detected	Paper detected
49	Paper sensor - 3rd bin (optional 4-bin mailbox)	Paper not detected	Paper detected
50	Paper overflow sensor – 3 rd bin (optional 4-bin mailbox)	Paper not detected	Paper detected
51	Paper sensor - 4th bin (optional 4-bin mailbox)	Paper not detected	Paper detected
52	Paper overflow sensor – 4th bin (optional 4-bin mailbox)	Paper not detected	Paper detected
53	Upper paper transport sensor - Mailbox (optional 4-bin mailbox)	Paper not detected	Paper detected
54	Lower paper transport sensor - Mailbox (optional 4-bin mailbox)	Paper not detected	Paper detected
55-75	Not used		

Table 1: Paper Size Switch (Main Unit)

Number	SW 1	SW 2	SW 3	Paper Size	
				US model	Europe/Asia
23	0	0	0	---	---
	0	0	1	LG SEF	A4 LEF
	0	1	0	8 1/2" x 13"	11" x 8 1/2"
	0	1	1	11" x 8 1/2"	A4 SEF
	1	0	0	* (Asterisk)	* (Asterisk)
	1	0	1	A4 LEF	8 1/2" x 11"
	1	1	0	8 1/2" x 11"	A5 LEF
	1	1	1	11" x 17"	A3

1: Pushed

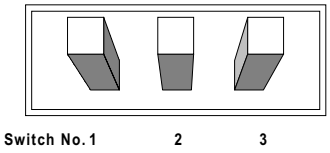


Table 2: Paper Size Switch (optional paper tray)

Number	SW 1	SW 2	SW 3	SW 4	Paper Size
					US/ Europe/Asia
30, 34	0	0	0	0	---
	0	0	0	1	* (Asterisk)
	0	0	1	0	---
	0	0	1	1	A4 LEF
	0	1	0	0	---
	0	1	0	1	LG SEF
	0	1	1	0	---
	0	1	1	1	A4 SEF
	1	0	0	0	---
	1	0	0	1	11" x 8 1/2"
	1	0	1	0	---
	1	0	1	1	8 1/2" x 11"
	1	1	0	0	---
	1	1	0	1	11" x 17"
	1	1	1	0	---
	1	1	1	1	A3

1: Pushed ---: Cassette not detected

Table 3: Paper Height Sensor (standard cassette)

Number	SP Value	Paper Amount
24, 31	00H	More than 20%
	01H	Less than 20%

Table 4: Paper Height Sensor (optional paper tray)

Number	SP Value	Paper Amount
36	00H	Less than 10%
	01H	More than 90%
	02H	10 - 50%
	03H	50 - 90%

5.3.3 OUTPUT CHECK TABLE

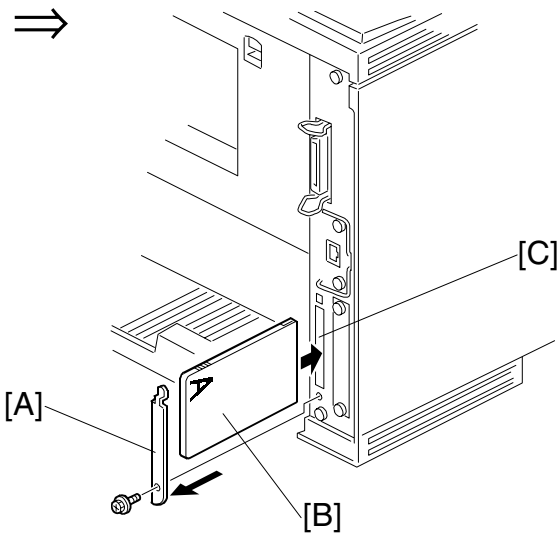
Number	Description
1	Main motor (forward)
2	Paper transport clutch
3	Registration clutch
4	Not used
5	Paper feed clutch (standard cassette)
6	Bypass feed solenoid
7-10	Not used
11	Fan motor (high speed)
12	Fan motor (low speed)
13	Fusing relay
14-21	Not used
22	Polygon motor on
23	Polygon motor on and LD on
24-25	Not used
26	Upper paper feed clutch (optional paper tray unit)
27	Upper paper feed motor (optional paper tray unit)
28	Lower paper feed clutch (optional paper tray unit)
29	Lower paper feed motor (optional paper tray unit)
30	Not used
31	Paper exit motor (1-bin shift tray, 4-bin mailbox)
32	Paper exit junction gate solenoid
33	1-bin shift tray - right
34	1-bin shift tray - left
35	Mailbox turn gate solenoid 2 (optional 4-bin mailbox)
36	Mailbox turn gate solenoid 3 (optional 4-bin mailbox)
37	Mailbox turn gate solenoid 4 (optional 4-bin mailbox)
38-40	Not used
41	Duplex inverter motor (forward: optional duplex unit)
42	Duplex inverter motor (reverse: optional duplex unit)
43	Duplex transport motor (Optional duplex unit)
44	Inverter gate solenoid (Optional duplex unit)
45-50	Not used

CÓPIA NÃO CONTROLADA

5.4 FIRMWARE UPDATE PROCEDURE

5.4.1 CONTROLLER/NIB/ENGINE FIRMWARE UPDATE

This procedure is for upgrading the firmware of the machine.



⚠CAUTION
Do not turn off the machine while downloading the firmware.

NOTE: When you see the machine from the back, the "A" side of the card must face the right as shown.

1. Prepare 2 IC cards with the controller firmware.
2. Turn off the main switch.
3. Remove the IC card slot cover [A] on the rear side of the machine as shown.
4. Insert the IC card-1 [B] into slot [C] and turn on the main switch. "Onboard Sys. 1/2" is displayed.

Onboard Sys. 1/2

5. Press "# Enter."
   Note: Make sure that ∗ is displayed.

Onboard Sys. 1/2 ∗

6. Scroll with the [▲] [▼] key and select "Update."
   Press "# Enter" to start downloading.
   The "On Line" LED starts blinking and the machine starts to download the program.
   (Notice that the ∗ mark disappears as the program is downloaded.)

Update

Updating **********

7. When updating card-1 is finished, "Update 1/2 task done" is displayed.

Update 1/2 task done

8. Turn off the main switch and replace the card with IC card-2. Turn on the main switch, then downloading will automatically start.

Updating **********

9. When updating card-2 is finished, "Update done" is displayed. Then, remove the card, turn on the main switch and print the configuration sheet. Check that controller firmware is successfully updated.

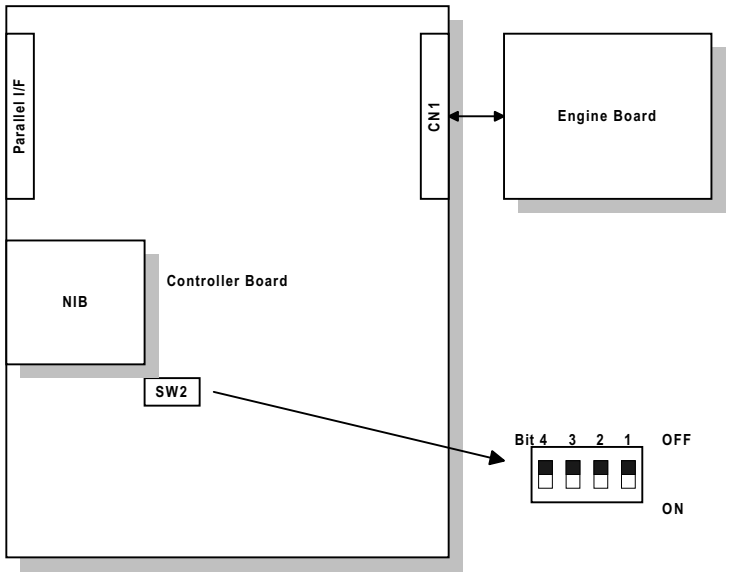
Update done

5.4.2 ERROR RECOVERY

Controller

If an error occurs during updating the controller firmware, use the following procedure. This procedure will force the controller to boot from the IC card.

1. Prepare two FlashROM cards with the required controller firmware version.
2. Turn off the machine and remove the controller.
3. Change the DIP switch 2 - No. 1 setting to “ON”.



4. Put back the controller and insert the first card into the FlashROM card slot on the controller.
   NOTE: When you see the machine from the back, the “A” side of the card must face the right.
5. Turn on the machine. The machine automatically starts to download the software.
6. When downloading is finished, “Update done” is displayed.
7. Turn off the machine, remove the first card, and insert the second card.
8. Repeat steps 5 and 6.
9. Turn off the machine, remove the first card, and reset the DIP switch 2 - No.1 setting to “OFF”. Then, put back the controller.
   NOTE: The default settings of the DIP switches are all ‘OFF’.
10. Turn on the machine, and print the service summary report.

NIB/Engine Board

If a download attempt failed, try downloading the new firmware again using the procedure described in section 5.4.1.

Service Tables

CÓPIA NÃO CONTROLADA

5.5 POWER-ON SELF TEST

This self diagnostic test requires a loop-back connector (P/N: G0219350).

1. Turn off the machine and attach the loop-back connector to the parallel interface.
2. Turn on the machine while pressing the “On Line” key and “# Enter” key together.
3. The machine prints the diagnostic report automatically.
   - Refer to section 5.3.1 for how to check the error codes (Engine service mode – Diag result)
   - Refer to section 4.2 for details about the error codes.

5.6 OTHER TESTS

The controller tests the following devices at power-on. If an error is detected, an error code is stored in the controller board.

- CPU, ASIC and clock
- Flash ROM
- Resident and optional SDRAM
- Parallel interface
- NIB
- IEEE1394 interface (if installed)
- NVRAM
- Optional HDD (if installed)

- Refer to section 5.3.1 for how to check the error codes (Engine service mode - Diag result)
- Refer to section 4.2 for details about the error codes.

CÓPIA NÃO CONTROLADA

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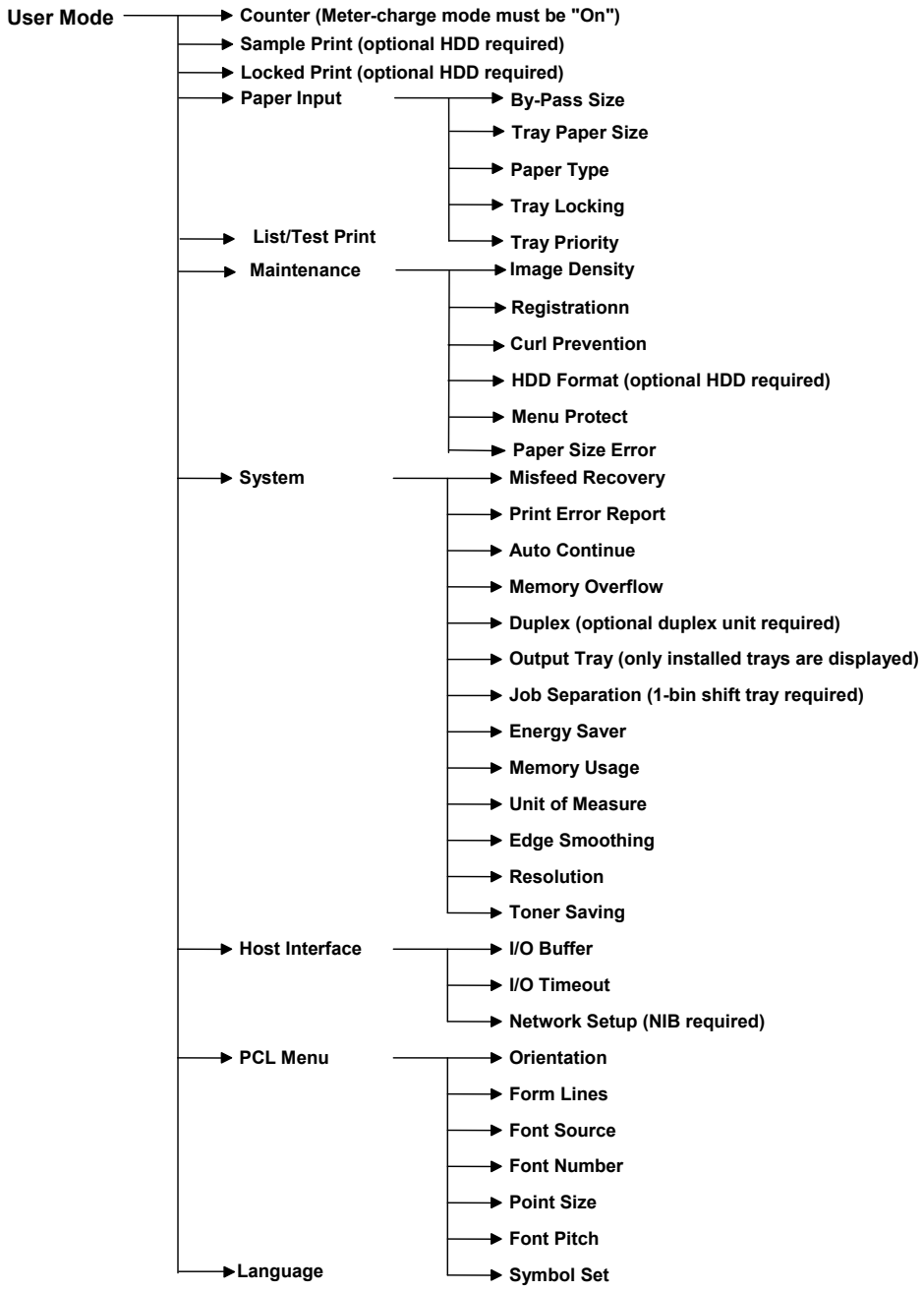
5.7 USER PROGRAM MODE

Press the “Menu” button and use the “Up/Down arrow” keys to scroll through the menu listing.
To go back to a higher level, press the “Escape” key.
After changing the settings, press the “On Line” key.
The user menu list can be printed using “Menu List” in the “List/Test Print” user mode.

⇒User Mode Tree



Service Tables

CÓPIA NÃO CONTROLADA

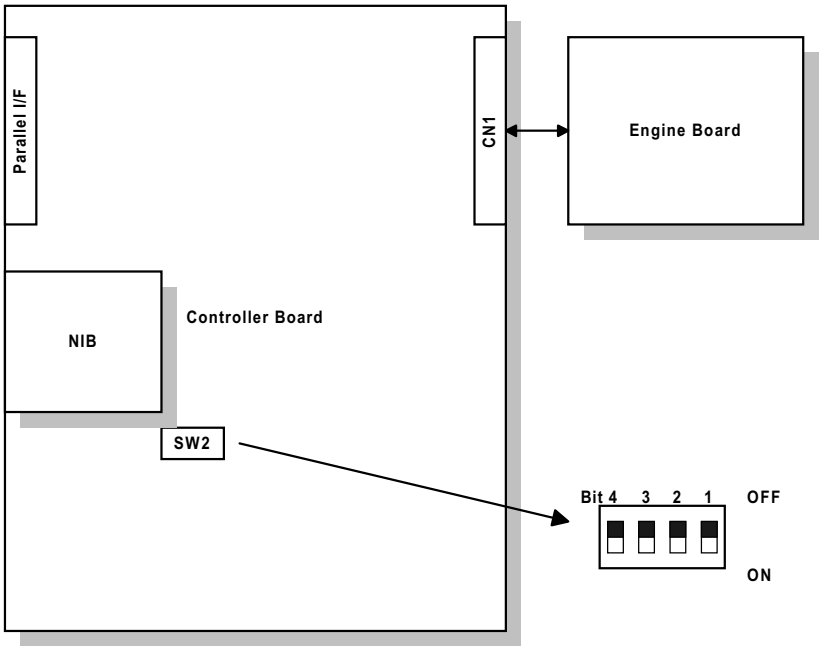
CÓPIA NÃO CONTROLADA

5.8 DIP SWITCHES

Controller Board

DIP switch 2 (Bit 1) on the controller is used for error recovery after a firmware updating procedure failed.

NOTE: The default settings of the DIP switches are all 'OFF'.



Engine Board

DIP switch 1 on the engine board is for factory use only. Do not change the setting.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

DETAILED DESCRIPTIONS

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

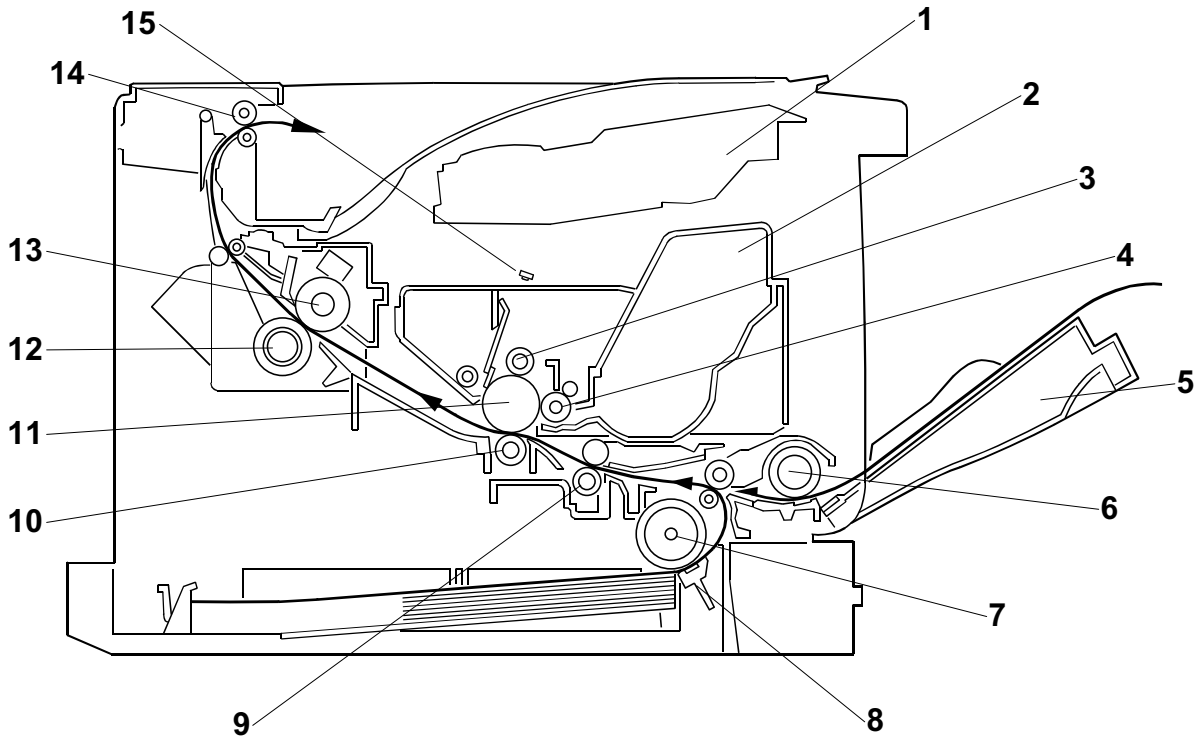
CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

6. DETAILED SECTION DESCRIPTIONS

6.1 OVERVIEW

6.1.1 MECHANICAL COMPONENT LAYOUT

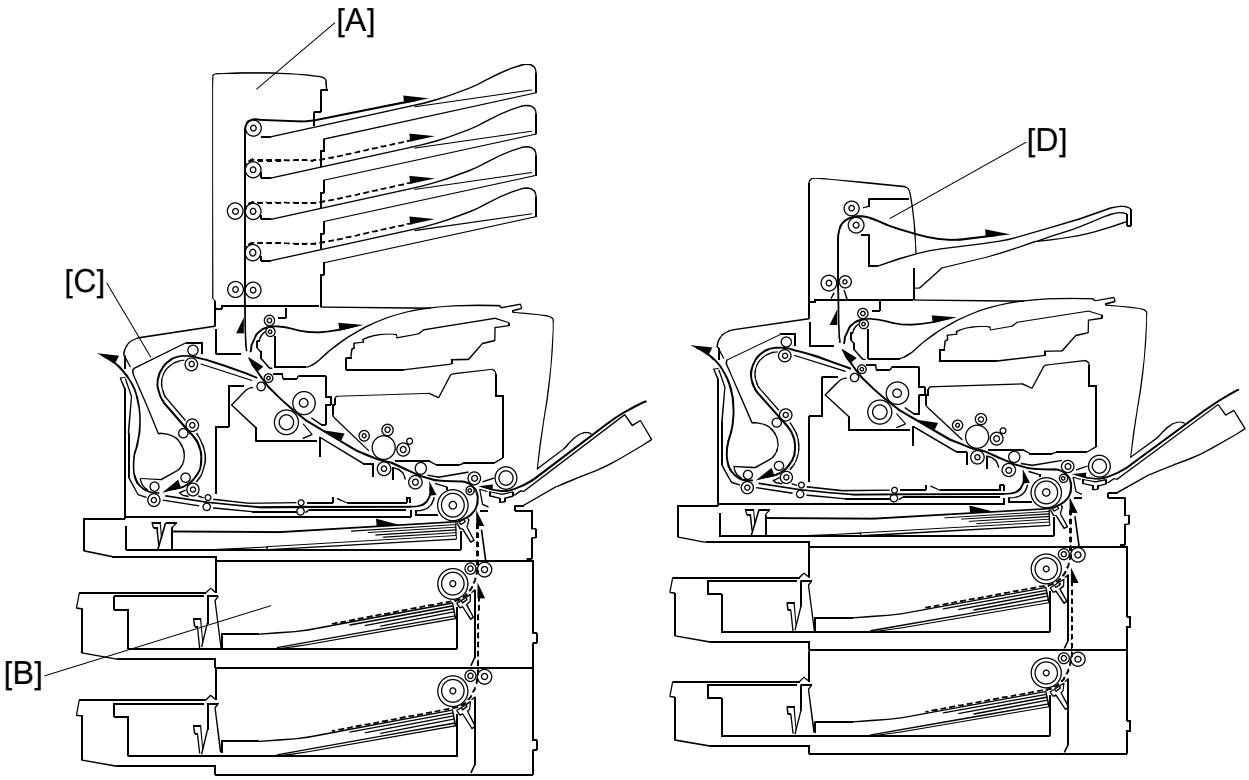


1. Laser unit
2. Cartridge (AIO-type)
3. Charge roller
4. Development roller
5. By-pass feed tray
6. By-pass feed roller
7. Paper feed roller
8. Friction pad
9. Registration roller
10. Transfer roller
11. Drum
12. Pressure roller
13. Hot roller
14. Paper exit roller
15. Quenching lamp

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

6.1.2 PAPER PATH

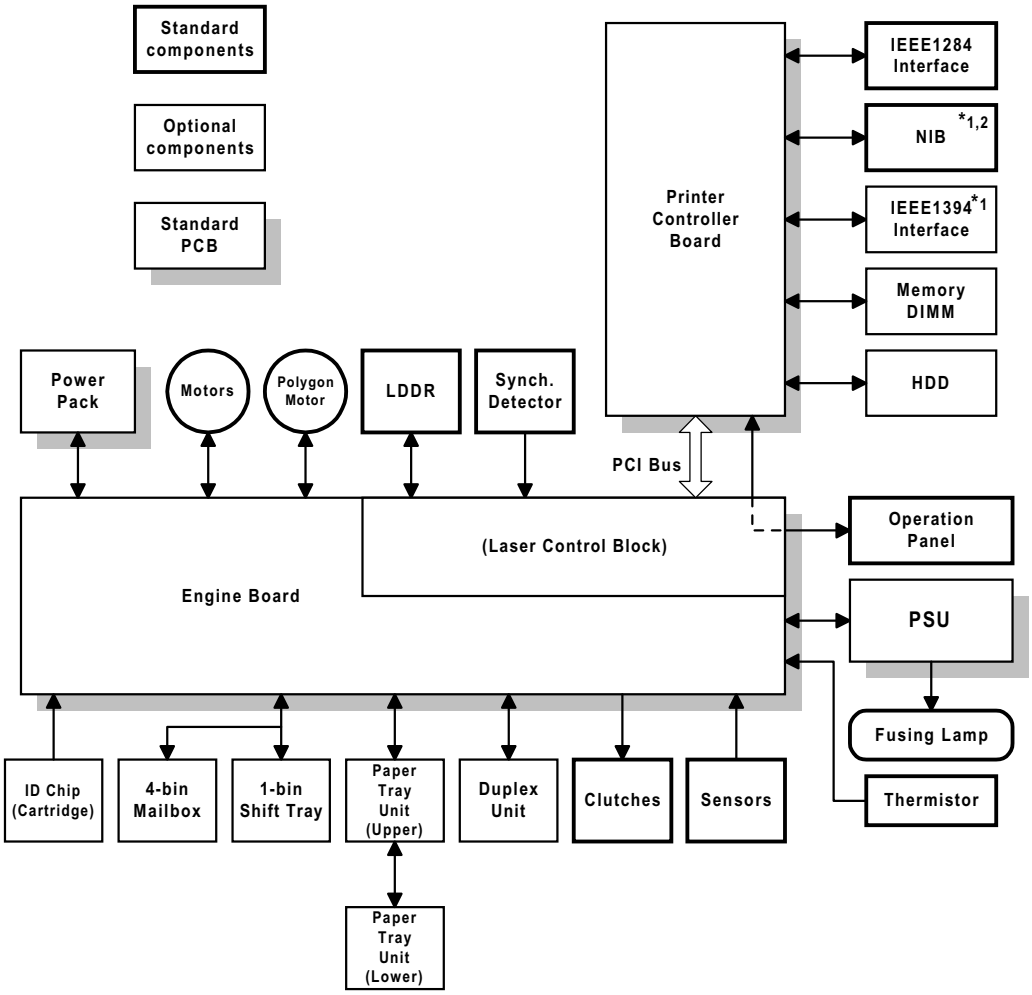


[A]: Optional four-bin mailbox
[B]: Optional paper tray unit
(the top tray can be an envelope feeder)
[C]: Optional duplex unit
[D]: Optional one-bin shift tray unit

CÓPIA NÃO CONTROLADA

6.2 BOARD STRUCTURE

6.2.1 OVERVIEW



The engine board controls all the mechanical components. The NIB, memory DIMM, and the HDD can be installed on the controller board.

The printer controller board connects to the engine board through a PCI bus.

The NIB (network interface board) or IEEE1394 board can be installed on the G056 model as options.

NOTE: 1) The NIB and the IEEE1394 board cannot be installed at the same time.
2) The NIB is a standard component for the G058 but not the G056.

Detailed Descriptions

CÓPIA NÃO CONTROLADA

6.2.2 DESCRIPTIONS

1. Engine Board

The engine board controls the following functions:

- Engine sequence
- Machine and printer engine operation
- Timing for peripherals
- High voltage supply, laser, and fusing
- Sensors, motors, and solenoids

2. Printer Controller Board

The printer controller board handles the following functions:

- Printer-to-host interface
- Operation panel interface
- Interfacing and control of the NIB (or IEEE1394) and other options (HDD and DRAM DIMM)

3. LD Drive Board

This is the laser diode drive circuit board.

4. Network Interface Board (NIB)

The network interface board allows the printer to be used on a network.

5. IEEE1394 Interface (Option)

This allows computers to connect to this printer using an IEEE1394 interface.

6. HDD Unit (Option)

The HDD unit stores the data for the following.

- Additional soft fonts
- Collation
- Protected print
- Sample print
- Downloading forms for form overlay

7. Memory DIMM (Option: 64MB DRAM)

This is for additional printer processing memory, collation, and for soft fonts.

8. Control Panel Board

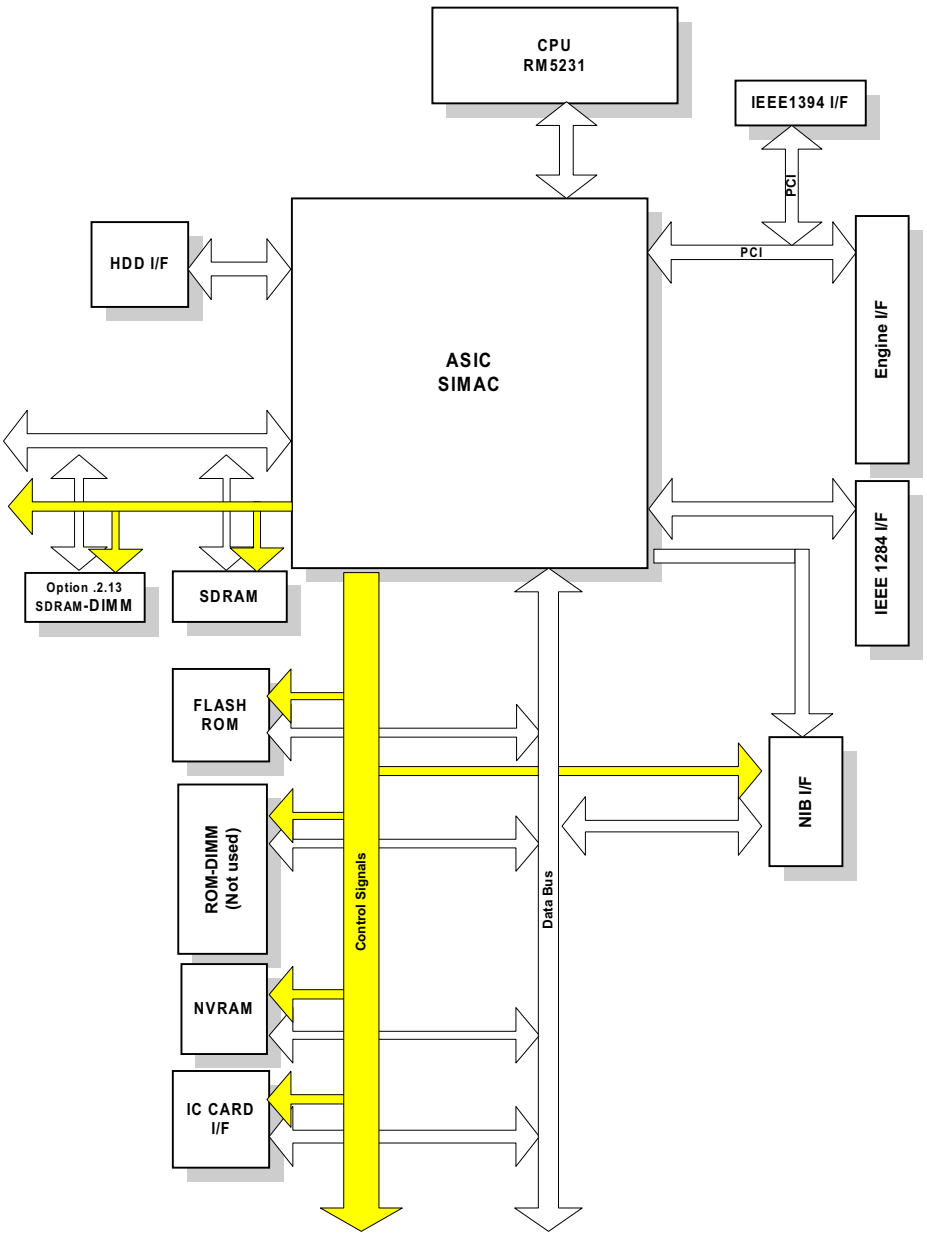
Controls the display panel, the LED, and the keypad.

9. IEEE1284 Interface

This is a parallel printer port.

CÓPIA NÃO CONTROLADA

6.2.3 CONTROLLER BOARD



SIMAC: The SIMAC ASIC is a multi-purpose peripheral controller. It controls all the functions of the printer controller board.

CPU: 32-bit CPU (RM5231-200)

SDRAM: 32MB SDRAM

Flash ROM: 8MB Flash ROM

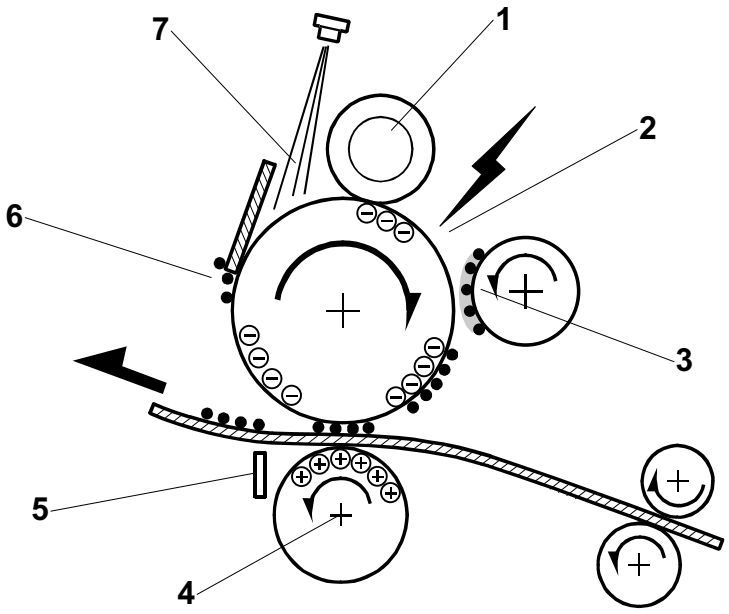
NVRAM: Stores the controller settings

Detailed Descriptions

CÓPIA NÃO CONTROLADA

6.3 PRINTING PROCESS

6.3.1 OVERVIEW



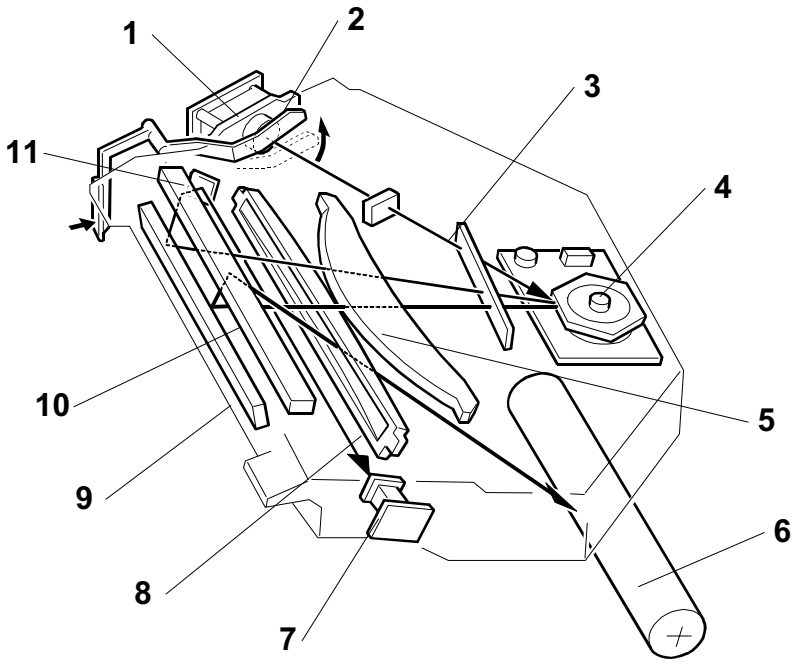
1) Drum charge: The charge roller gives the drum a negative charge.
2) Laser exposure: A laser beam writes the print data to the drum.
3) Development: The development roller carries toner to the latent image on the drum surface.
4) Image transfer: The transfer roller pulls the toner from the drum onto the paper.
5) Separation: The separation plate helps to separate the paper from the drum.
6) Cleaning: The cleaning blade removes any toner remaining on the drum surface after the image transfers to the paper.
7) Quenching: The light from the quenching lamp neutralizes the charge remaining on the drum.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

6.3.2 LASER EXPOSURE

Overview



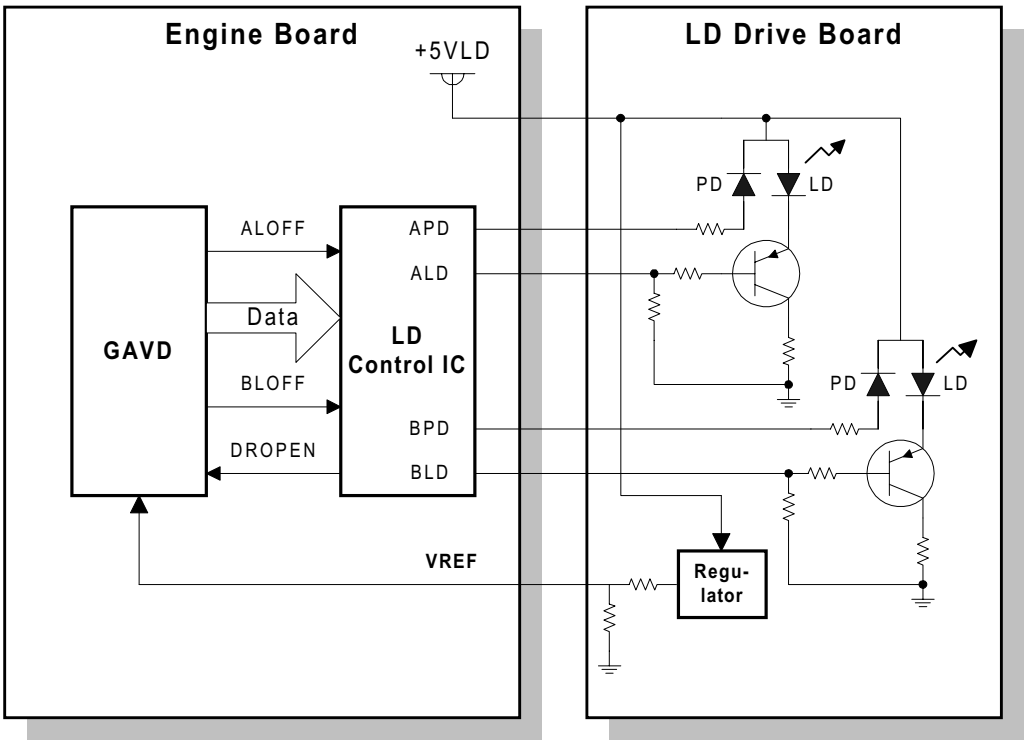
1. LD unit
2. Laser shutter
3. Shield glass
4. Polygon mirror
5. F-theta lens
6. Drum
7. Synchronization detector
8. Toroidal lens
9. 1st mirror
10. 2nd mirror
11. Detector mirror

- Synchronization Detector: The beam emitted from the LD unit is reflected by the 1st mirror, 2nd mirror, and the detector mirror to the synchronizing detector.
- Two-beam Laser Writing: The LD unit writes two lines at once.
- LD Safety Shutter: When the front cover is opened, the shutter closes to block the laser beam path.
- After the LD unit has been replaced, its position must be adjusted (see Replacement and Adjustment).
- The thermistor next to the laser unit (not shown) checks the temperature inside the machine. The machine automatically adjusts the charge roller and transfer voltages in response to this temperature.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

Automatic Power Control (APC)

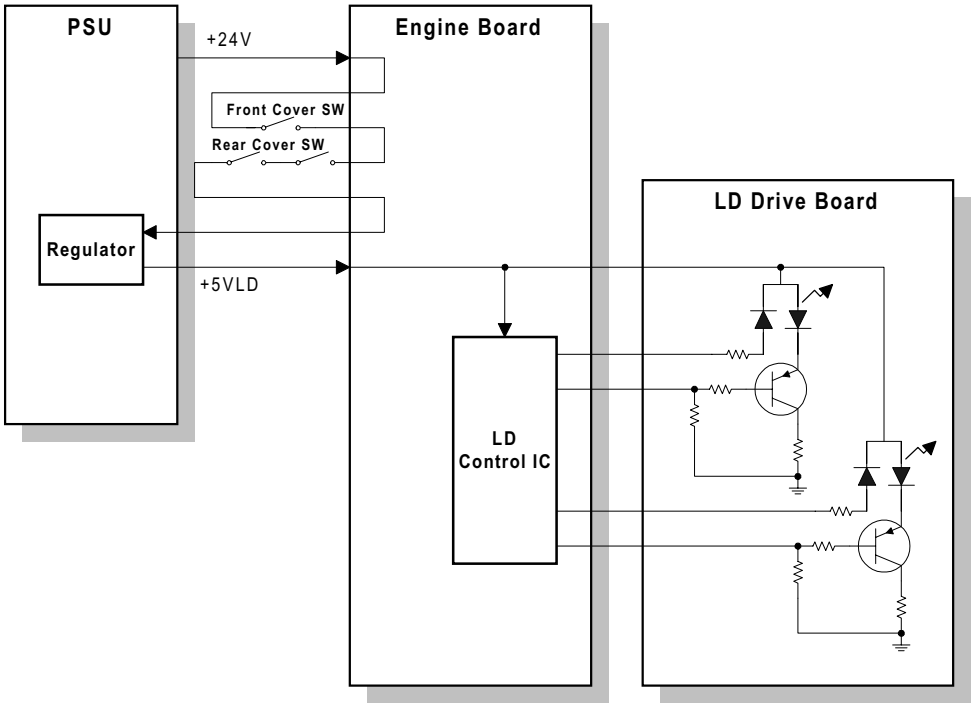


- To prevent the intensity of the laser beam from changing because of temperature, the machine monitors the laser beam with a photodiode (PD). The PD passes the current to the LD control IC. The machine adjusts the current to the laser diode by comparing it with the reference level from the regulator. The LD control IC on the engine board controls this.
- The laser diode power is adjusted on the production line. Do not touch the variable resistors on the LD unit in the field.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

LD Safety Mechanisms



Laser Safety Switch

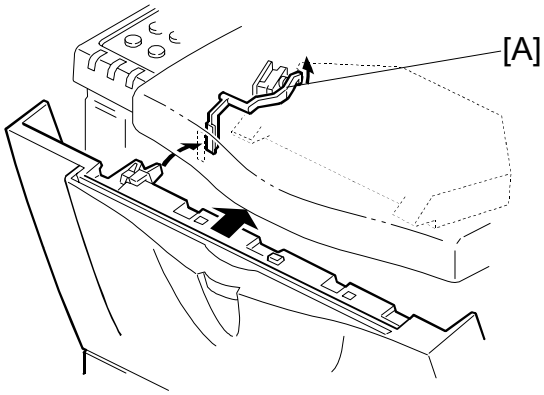
To ensure technician and user safety and to prevent the laser from inadvertently switching on during servicing, there are safety switches on the front and rear covers.

When either of the covers are opened, the +5VLD power to the laser diodes is interrupted.

Laser Shutter

The laser shutter [A] is a back-up safety measure in case the switches are defective and the +5VLD power reaches the laser diodes.

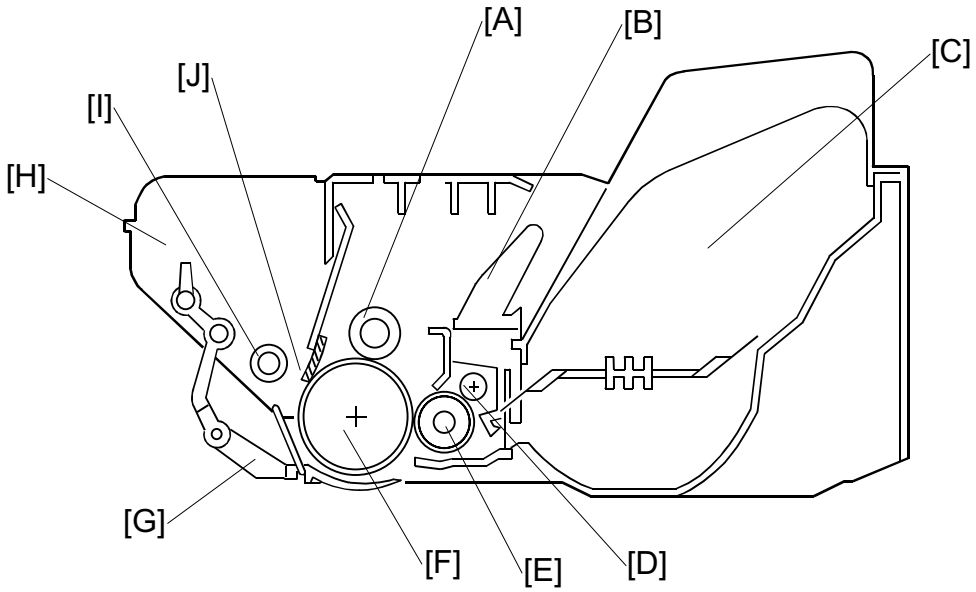
The laser shutter cuts the laser beam when the front cover is opened.



Detailed Descriptions

CÓPIA NÃO CONTROLADA

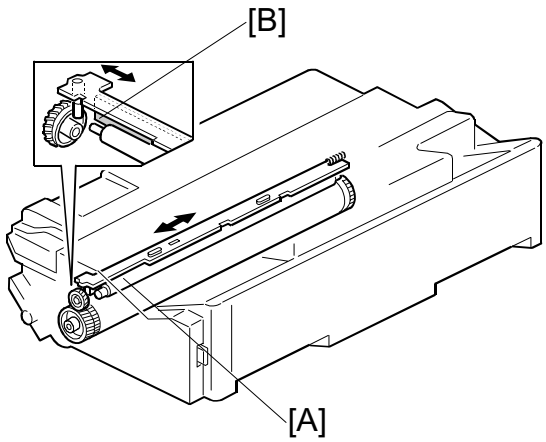
6.3.3 CARTRIDGE OVERVIEW



[A]: Charge roller
[B]: Developer tank
[C]: Toner tank
[D]: Reverse roller
[E]: Development roller
[F]: Drum
[G]: Drum shutter
[H]: Waste toner tank
[I]: Toner collection roller
[J]: Cleaning blade

- This type of cartridge is known as an “All-in One” cartridge.

6.3.4 DRUM CHARGE



[A]: Charge roller
[B]: Cleaning pad

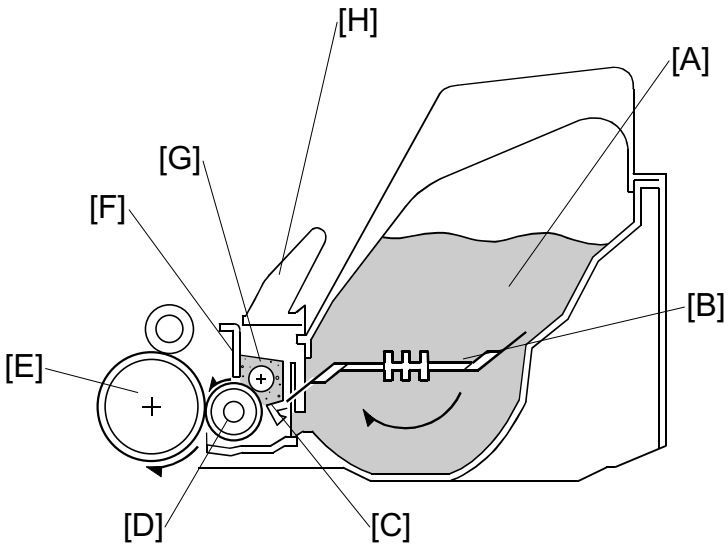
- The charge roller gives the drum surface a negative charge of about -900 V.
- The cleaning pad [A] contacts the charge roller to clean the surface.

CÓPIA NÃO CONTROLADA

6.3.5 DEVELOPMENT

Overview

[A]: Toner tank
[B]: Agitator
[C]: Pre-doctor blade
[D]: Development roller
[E]: Drum
[F]: Doctor blade
[G]: Reverse roller
[H]: Developer tank



Toner Supply

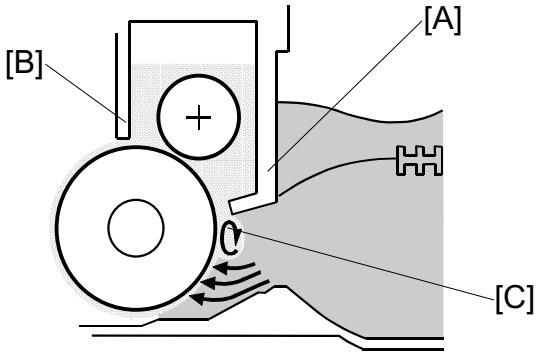
- The agitator [B] stirs toner and carries it to the development roller.

Development Unit

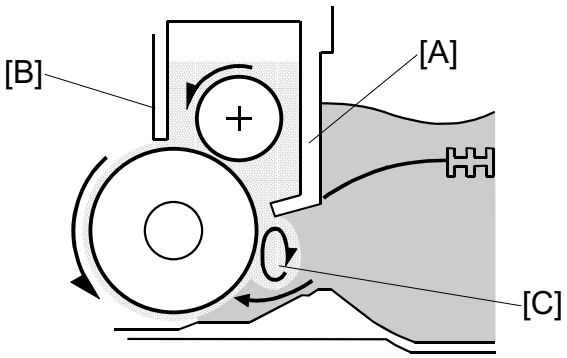
- This machine uses a single-roller development system.
- The high voltage supply applies -700V to the development roller.
- When the developer seal is removed, developer drops and the magnetic reverse roller [G] stirs and mixes the developer.
- This machine does not use a TD sensor or ID sensor to control toner density.
- The toner density is controlled by the pre-doctor blade [C] and the doctor blade [F].

CÓPIA NÃO CONTROLADA

Toner Density Control



More toner is fed when the toner coating on the development roller is thin



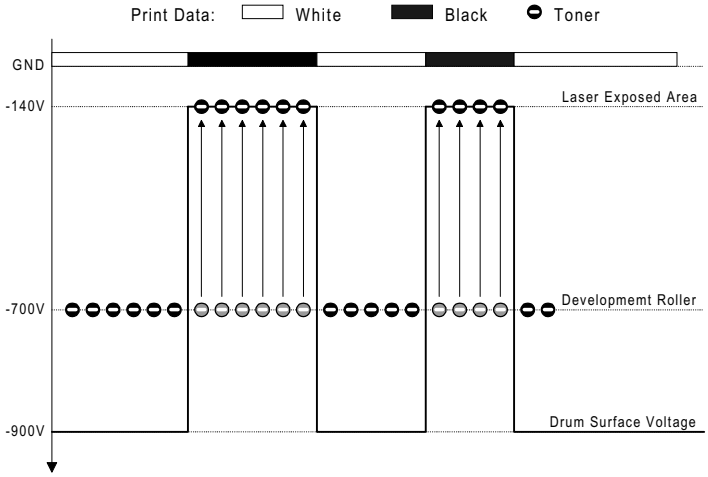
Less toner is fed when the toner coating on the development roller is thick

[A]: Pre-doctor blade
[B]: Doctor blade
[C]: Circulation of developer

A mixture of toner and developer circulates at the pre-doctor blade [A].

- When the amount of toner on the development roller decreases, the circulation [C] decreases to allow more toner to reach the development roller.
- When the amount of toner on the development roller increases, the circulation [C] increases to allow only a little toner to reach the development roller.

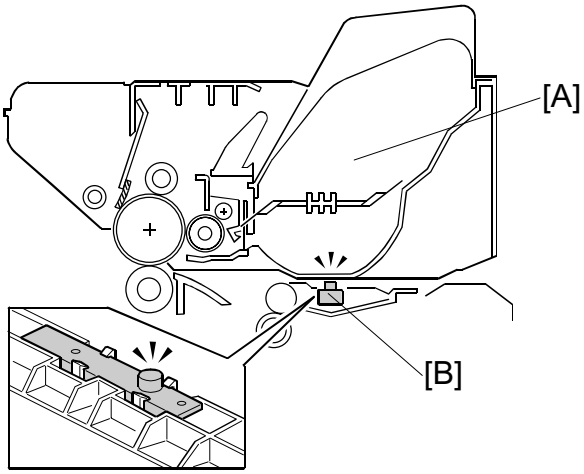
Development Bias



- Toner transfers from the development roller to the areas on the drum that were exposed to the laser.

CÓPIA NÃO CONTROLADA

Toner End Detection



[A]: Toner tank
[B]: Toner end sensor

- The toner end sensor detects toner near-end by the voltage output.

Toner near-end:
When the CPU detects that the output from the toner density sensor is below a certain level, the machine warns the user by displaying “Low on Toner” on the operation panel.

Toner end:
After toner near-end is detected, the machine can print 200 more pages, then it disables printing. At this time, “Replace Toner Cartridge” is displayed. The 200-page limit can be changed with engine service mode ("Toner End Count").
The machine also displays “Replace Toner Cartridge” when the output from the toner density sensor is below a certain level.

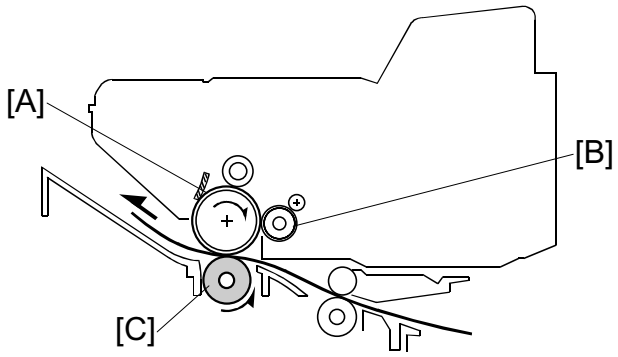
- To avoid waste toner tank overflow, the machine can also stop printing if the total number of prints per cartridge exceeds a certain limit (default setting: 30k). This number can be adjusted with “Waste Lim Count” in the engine service mode.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

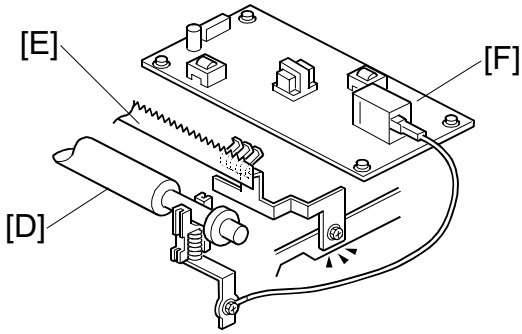
6.3.6 IMAGE TRANSFER AND PAPER SEPARATION

Overview



[A]: Drum
[B]: Development roller
[C]: Transfer roller

- This machine uses a transfer roller [C] to pull the toner from the drum onto the paper.
- The high voltage supply applies a positive current (+18μA) to the transfer roller. The current applied to the transfer roller can be adjusted with the printer engine SP mode “Transfer set.”



[D]: Transfer roller
[E]: Separation plate
[F]: High voltage supply

- The separation plate helps to separate paper from the drum.

Transfer Roller Cleaning

After a paper jam or when the wrong paper size was set, toner may transfer to the back side of printouts. To prevent this, the machine automatically cleans the transfer roller before the next print run.

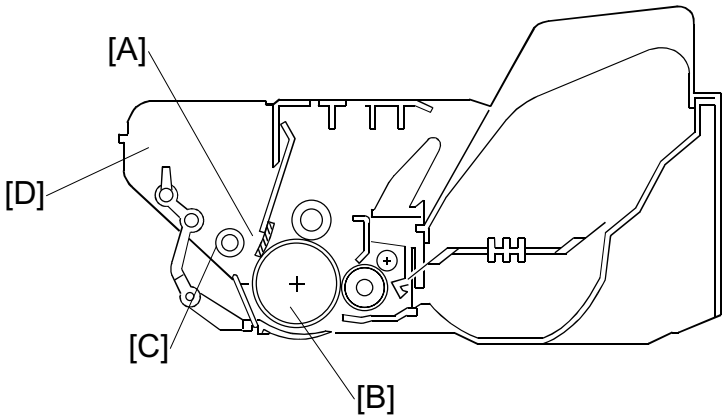
During transfer roller cleaning, the high voltage supply applies a negative current (-3μA) to the transfer roller.

The machine cleans the transfer roller under the following conditions.

- At power on
- During fusing unit warm-up
- Immediately after a jam has been cleared
- Any time the front cover is opened and closed
- After a job which is 10 pages or larger

CÓPIA NÃO CONTROLADA

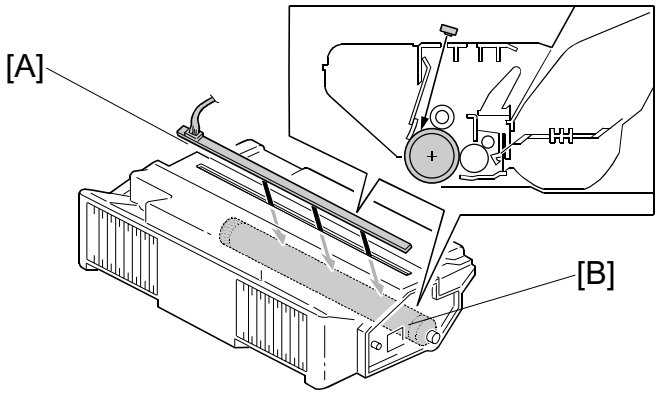
6.3.7 CLEANING



[A]: Cleaning blade
[B]: Drum
[C]: Toner collection roller
[D]: Waste toner tank

- The cleaning blade [A] removes any toner remaining on the drum.
- The toner collection roller [C] brings the toner into the waste toner tank.
- There is no waste toner overflow detection. See "Toner End Detection" for details on avoiding waste tank overflow.

6.3.8 QUENCHING

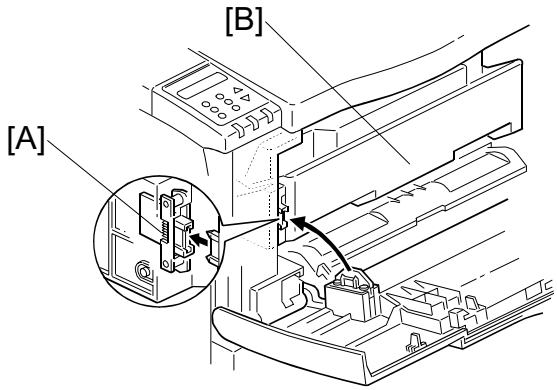


[A]: Quenching lamp
[B]: Drum

- Light from the quenching lamp (LED) reaches the drum through the slit at the top of the cartridge.

CÓPIA NÃO CONTROLADA

6.3.9 ID CHIP



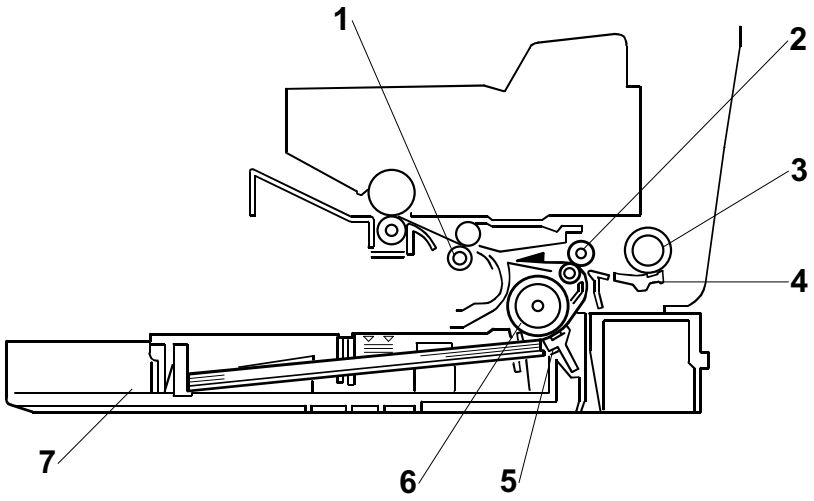
[A]: ID chip
[B]: Cartridge

- An ID chip is installed in the cartridge which contains cartridge information.

CÓPIA NÃO CONTROLADA

6.4 PAPER FEED

6.4.1 OVERVIEW



1. Registration roller
2. Relay roller
3. By-pass feed roller
4. By-pass friction pad
5. Friction pad
6. Feed roller
7. Paper tray

Paper Tray

Paper Feed System:	Feed roller and friction pad
Paper Lift Mechanism:	Tray arm and spring
Paper Detection:	Paper end sensor and paper near-end sensor
Paper Size Detection:	Paper size switch
Tray Capacity:	250 sheets
Tray Extension:	Available

By-pass Tray

Paper Feed System:	Feed roller and friction pad
Paper Lift Mechanism:	Cams and springs
Paper Detection:	By-pass tray paper sensor
Paper Size Detection:	None
Tray Capacity:	100 sheets

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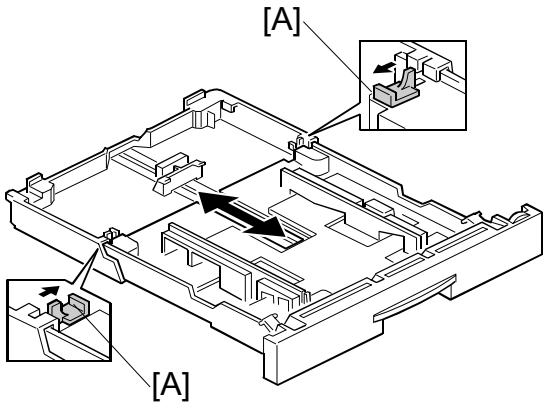
6.4.2 PAPER TRAY

Tray Extension

The tray can be extended manually to hold paper longer than A4/Letter size. To use longer paper, release the catches [A] at both sides, then extend the tray and re-lock the catches.

The paper sizes in the following table can be used.

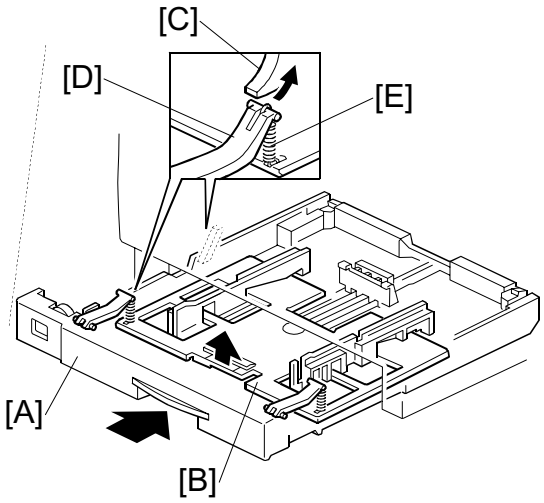


Tray Mode	Possible Paper Sizes
Short (default)	A5 (LEF), B5 (LEF), A4 (LEF/SEF), 10.5”x7.25” (LEF), LT (LEF/SEF)
Long	B4 (SEF), A3 (SEF), 8.5”x13” (SEF), 8”x13” (SEF), 8.25”x13” (SEF), LG (SEF), DLT (SEF)

Paper Lift

When the tray [A] is put in the machine, the bottom plate [B] is lifted as follows.

- The slopes on the guide blocks [C] on the machine lift the tray arms [D] up.
- The springs [E] between the tray arms and bottom plates lift the plate.
- The springs [E] keep the stack of the paper at the correct height.
- There is no height sensor.



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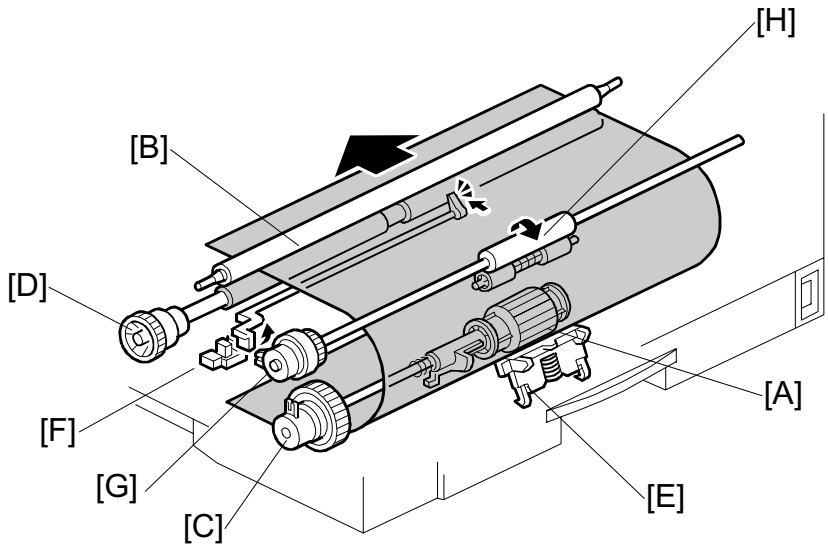
Paper Feed and Registration



[A]: Feed roller
[B]: Registration roller
[C]: Paper feed clutch
[D]: Registration clutch
[E]: Friction pad
[F]: Registration sensor
[G]: Relay clutch
[H]: Relay roller

- The friction pad pressure cannot be adjusted.
- The machine makes a paper buckle at the registration roller to correct paper skew.
  The paper buckle can be adjusted by Engine Service Mode; Regist Sag.

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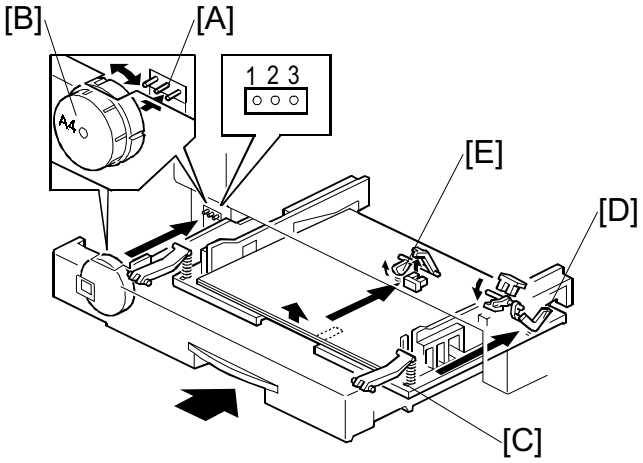
Paper Size Detection

Size \ SW		1	2	3
NA	**Eur/Asia**			
DLT	A3	m	m	m
LG	A4 LEF	m	l	l
LT LEF	A4 SEF	m	m	l
LT SEF	A5 LEF	l	m	m
8.5”x13”	LT LEF	l	m	l
A4 LEF	LT SEF	m	l	m
*	*	l	l	m

l : On (Not pushed)
m : Off (Pushed)



[A]: Paper size microswitches
[B]: Paper size dial
[C]: Bottom plate
[D]: Paper near-end sensor
[E]: Paper end sensor

- The machine disables paper feed from a tray if the paper size cannot be detected (if the paper size actuator is broken or no tray is installed)
- When the paper size dial is at the “*” mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using a User Tool at the machine’s operation panel (Paper Input menu – Tray Paper Size).

Paper End/Paper Near-end Detection

Paper Near-end Detection

When about 50 sheets are left on the tray, the bottom plate [C] pushes up the feeler of the paper near-end sensor [D]. The signal from the sensor is only used by the host computer; there is no indication on the operation panel.

Paper End Detection

When the paper tray runs out of paper, the feeler of paper end sensor [E] drops into the cutout in the bottom plate and the paper end sensor is activated.

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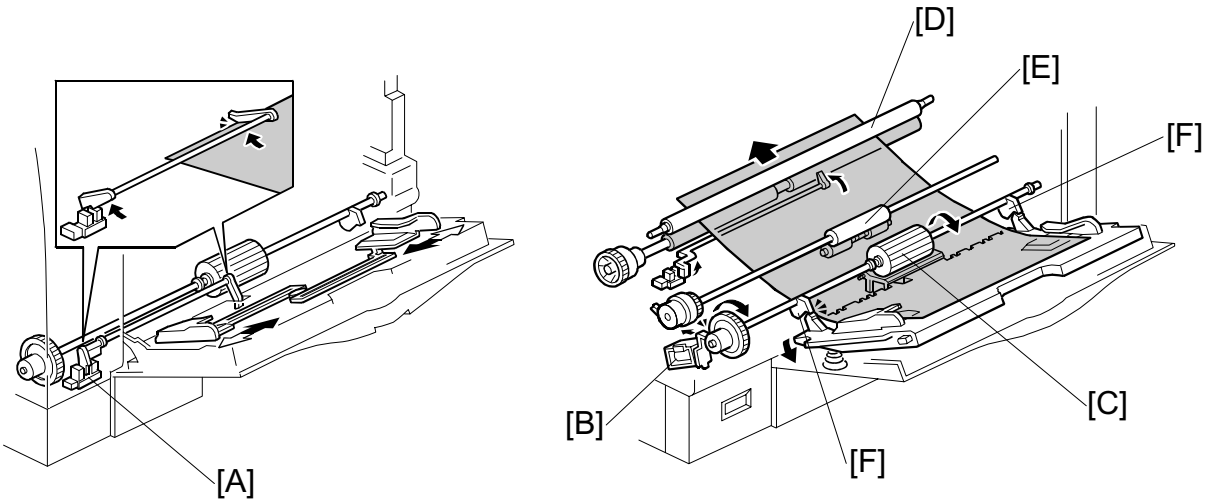
6.4.3 BY-PASS TRAY

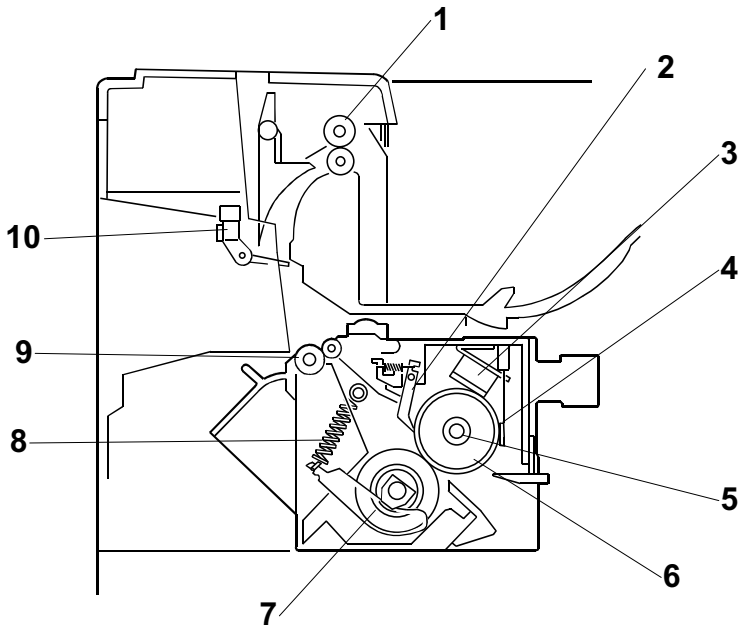


- The by-pass paper sensor [A] detects when paper is placed on the tray.
- The CPU energizes the by-pass feed solenoid [B], then the by-pass feed roller [C] starts to feed paper to the registration roller [D] through the relay roller [E].
- The by-pass feed roller shaft has two cams [F]. These cams release the bottom plate to press the stack of paper against the feed roller.
- There is no width sensor.

CÓPIA NÃO CONTROLADA

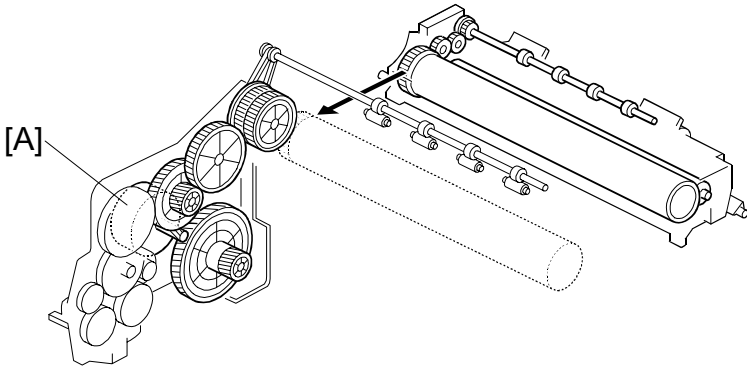
6.5 IMAGE FUSING AND PAPER EXIT

6.5.1 OVERVIEW



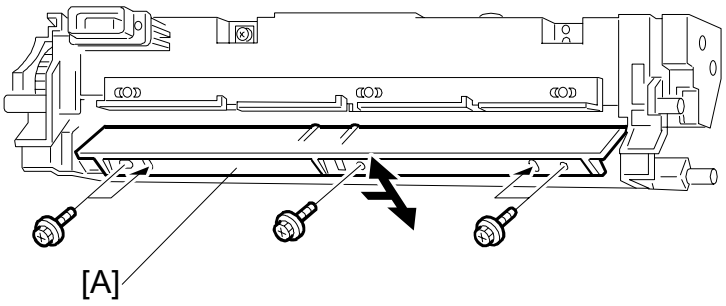
1. Paper exit roller
2. Hot roller strippers
3. Thermostat
4. Thermistor
5. Fusing lamp
6. Hot roller
7. Fusing pressure roller
8. Pressure spring
9. Fusing exit roller
10. Paper exit sensor

6.5.2 FUSING DRIVE



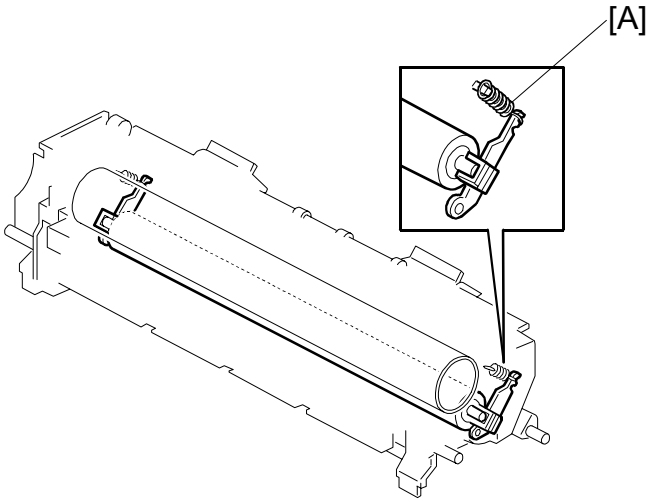
- The main motor [A] drives the fusing unit through a gear train.

6.5.3 FUSING ENTRANCE GUIDE SHIFT



- The entrance guide [A] is adjustable for paper thickness to prevent creasing. The outer-most screw holes on each side are the factory positions.
- If creasing occurs frequently in the fusing unit, change the entrance guide position by securing it with the other holes. This allows paper to have more direct access to the gap between the hot roller and the pressure roller.

6.5.4 PRESSURE ROLLER



- To change the applied pressure, adjust the position of the pressure springs. The factory setting for the spring position is at the top (minimum pressure).

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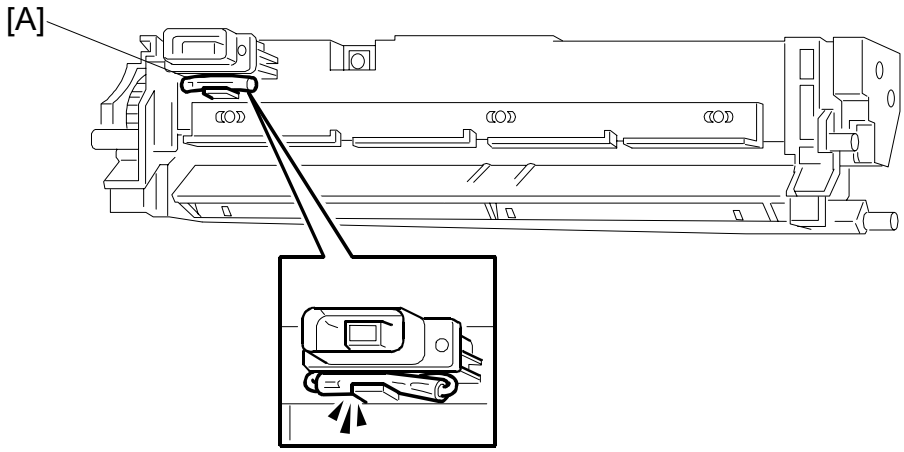
6.5.5 NEW FUSING UNIT DETECTION



There are two types of fusing unit: Service part, and maintenance kit part. Only the fusing unit in the maintenance kit has this detection mechanism.

In the maintenance kit fusing unit, the looped wire on the fusing unit connector contains a fuse [A]. When power is switched on after installing a new fusing unit, the engine board detects the fusing unit through the looped wire as usual. However, the fuse opens very shortly afterwards.

What happens next depends on the setting of Engine Service Mode - Meter Service Charge:

- If Meter Charge Mode is enabled–
    - After the technician replaces the fusing unit, the maintenance counter must be reset with an SP mode (Engine Service Mode - PM Counter Reset).
- If Meter Charge Mode is disabled (default setting) -
    - After the fusing unit has been replaced, the CPU detects the new unit and automatically removes the “Replace Maintenance Kit” message. Then, the maintenance counter resets automatically.

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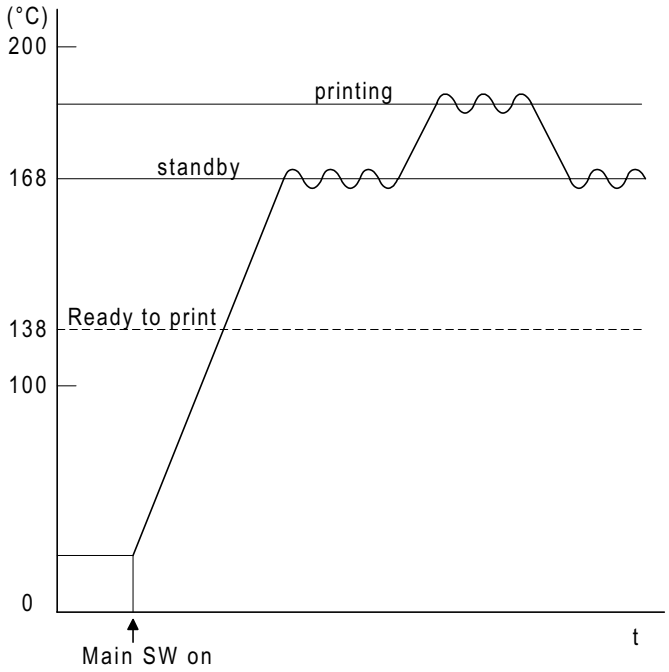
6.5.6 FUSING TEMPERATURE CONTROL



When the main switch turns on, the CPU turns on the fusing lamp using the soft start process (this prevents the room lights from flickering). The lamp stays on until the thermistor detects the standby temperature. Then the CPU maintains this temperature using on-off control. To start printing, the CPU raises the temperature to the printing temperature.

The fusing temperature for each mode is as follows.

Condition	Temperature			Note
Ready to print	138 °C			The machine can start to print any time.
Standby mode	168 °C			On-off control
Printing	Print start ~ 2 minutes	2 min. ~ 4 min.	4 min ~	On-off control
Tray	170 °C	165 °C	160 °C	
By-pass (Envelopes)	180 °C	180 °C	180 °C	
By-pass (Post Cards)	185 °C	185 °C	185 °C	
By-pass (Others)	170 °C	165 °C	160 °C	
Envelope Feeder	180 °C	180 °C	180 °C	
Thick Paper	185 °C	185 °C	185 °C	

To change between on/off control and phase control: Engine Service Mode - Fusing control

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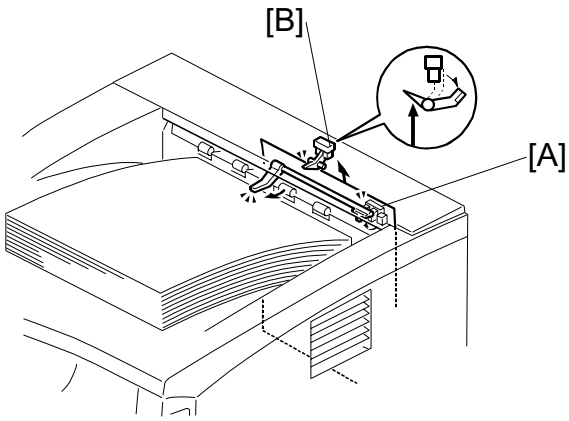
Overheat protection

- If the hot roller temperature becomes greater than 240 °C, the CPU cuts off the power to the fusing lamp. At this time, SC543 will be generated.
- If the thermistor overheat protection fails, there is a thermostat in series with the common ground line of the fusing lamp. If the temperature of the thermostat becomes greater than 210 °C, the thermostat opens, removing power from the fusing lamp. At this time, the machine stops operation.

6.5.7 PAPER EXIT



[A]: Paper overflow detection sensor
[B]: Paper exit sensor

- When the paper overflow detection sensor [A] is activated, the machine detects that the paper stack height has exceeded a certain limit and stops printing.
- The paper exit sensor [B] detects paper misfeeds.

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6.5.8 ENERGY SAVER MODE

When the machine is not being used, the energy saver feature reduces power consumption by switching off the fusing lamp.

Entering Energy Saver Mode

Energy saver mode starts after the machine has been idle for a certain time. This time is specified by the user; the following choices are available (press the Menu key on the operation panel, and access the System menu).

- Off (energy saver mode never activates)
- 5 minutes
- 15 minutes
- 30 minutes (default)
- 60 minutes

When the machine is in energy saver mode, the CPU turns off the fusing lamp. However, the +24V, +12V, and +5V lines are still active.

Leaving Energy Saver Mode

The machine leaves energy saver mode when one of the following happens.

- Print command received from the PC
- Any cover opened and closed
- Any operation panel keys pressed

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6.6 CONTROLLER FUNCTIONS

6.6.1 METER-CHARGE MODE

Meter-charge Counter Display

When the meter-charge mode (printer engine service mode) is switched on, the meter-charge counter menu is the first item shown on the user menu.
(The "Sample Print" menu appears first when the meter-charge mode is switched off.)

```
Menu:
  Counter
```

PM Warning Display

When the meter-charge mode (printer engine service mode) is switched on, "Replace Maintenance Kit" will not be displayed at 90k prints.

NOTE: The default setting for this machine is meter-charge mode off.

Item	Meter-charge On	Meter-charge Off	Remarks
Meter-charge counter	Shown as the first item in the user menu	Not shown	User menu
PM Warning	Not shown	"Replace Maintenance Kit" displayed at 90k prints	
PM	Service	Customer	
PM Counter	Reset manually	Automatically reset when the fusing unit is replaced using the maintenance kit	Printer engine service mode "PM counter"

The meter-charge counter is not the same as the PM counter. This is because, in the following cases, the meter-charge counter does not count up.

- Blank rear side during duplex printing
- Blank page when using the "Cover Page" or "Two in One" features
- Service reports

NOTE: The meter-charge counter cannot be reset.

6.6.2 SAMPLE PRINT

This feature is formally known as "Proof Print". This function gives users a chance to check the print results before starting a multiple-set print run.

- The size of the hard disk partition for the sample print feature is 5.4 GB. This partition is also used by the collation and locked print features.
- The partition can hold up to 30 files, including files stored using locked print.
- The maximum number of pages is 1,000, including jobs using locked print and collation.

NOTE: Sample print requires the installation of an optional hard disk.

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6.6.3 LOCKED PRINT

Using this feature, the print job is stored in the machine but will not be printed until the user inputs an ID at the machine's operation panel. This ID must match the ID that was input with the printer driver.

- Stored data is automatically deleted after it is printed.
- Stored data can be manually deleted at the operation panel.
- The hard disk can hold up to 30 files, including files stored using sample print.
- The maximum number of pages is 1,000, including jobs using sample print and collation.
- Locked print uses the same hard disk partition as sample print and collation, which is 5.4 GB.

NOTE: Locked print requires the installation of an optional hard disk.

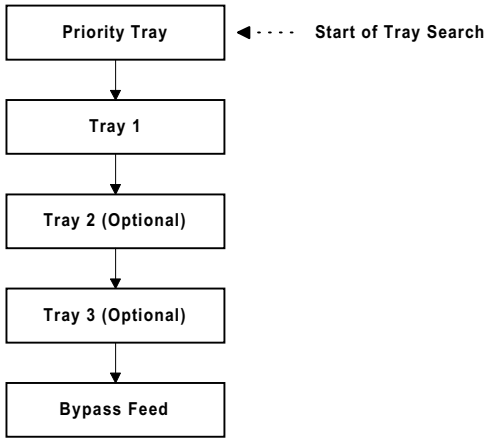
6.6.4 PAPER SOURCE SELECTION

Tray Priority (Auto Tray Select)

The Tray Priority setting determines the start of the tray search when the user selects "Auto Tray Select" with the driver.
The machine searches for a paper tray with the specified paper size and type.

When no tray contains paper that matches the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

The Tray Priority setting can be specified using the Paper Input menu of the user tools.



Tray Lock

If Tray Lock is enabled for a tray, the controller skips the "locked" tray in the tray search process.

NOTE: In this machine, each paper source can be "locked", including the by-pass feeder. If all paper sources are locked and "Auto Tray Select" is specified from the driver, the machine displays an error and stops printing.

Manual Tray Select

If the selected tray does not have the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

Detailed Descriptions

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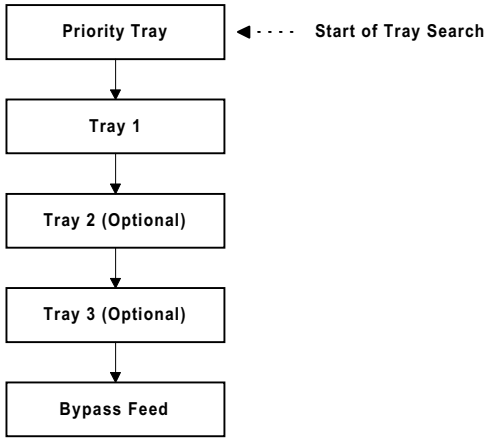
6.6.5 AUTO CONTINUE

When this function is enabled, the machine continues printing even if there is no paper tray which matches the paper size and paper type specified by the driver. The machine searches for a paper tray in the following way.

NOTE: The default setting for this feature is 'disabled'.

Auto Tray Select

When there is no paper tray that matches the paper size and type specified by the driver, the machine searches for any tray that has paper, and prints from the first tray it finds. The start of the tray search is the tray selected as the “Priority Tray.”



Manual Tray Select

The machine prints from the selected tray even if the paper size and type do not match the setting specified from the driver.

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6.6.6 PAPER OUTPUT TRAY

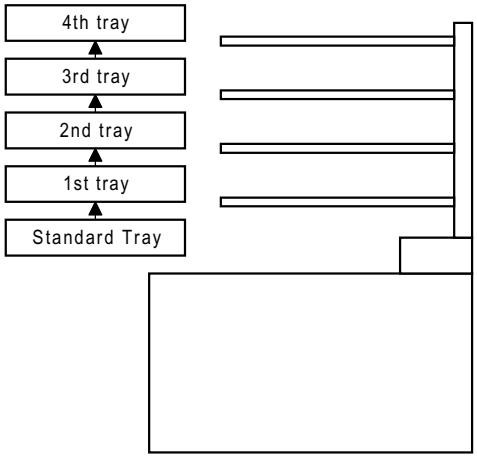
The output tray can be selected using the “System” menu of the user tools. To select an output tray other than the standard tray, the one-bin shift tray or four-bin mailbox must be installed.

Output Tray Selected

- If the machine cannot print to the selected output tray, it prints to the standard tray.
- If paper overflow is detected at the selected output tray, the controller stops printing until the overflow detector goes off.

Auto Tray Switching

When “Auto Tray SW” is selected in the “System” menu of the user tools and “Printer Default” is specified as an output tray in the driver, the controller automatically sends the output to the lowest tray. When that tray fills up, the controller sends the output to the next lowest tray.



- If a tray becomes full and paper is detected in the next tray, the machine displays an error and stops printing.
- If all trays become full (overflow detected in all trays), the machine displays an error and stops printing. This time, all paper must be removed.

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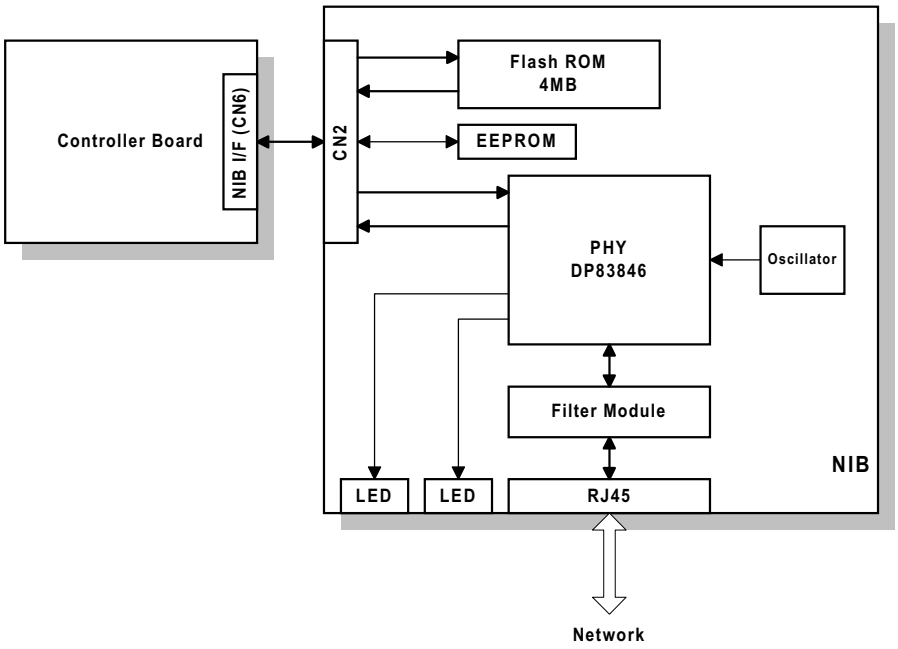
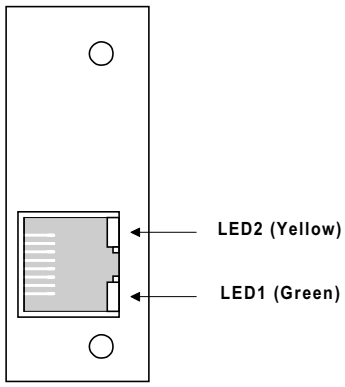
6.7 NIB

6.7.1 BLOCK DIAGRAM



- The Flash ROM contains the NIB firmware. The firmware can be upgraded using an Flash ROM card connected to the controller board.

6.7.2 LED INDICATORS



Description	On	Off
LED1 (Green): Link status	Link success	Link failure
LED2 (Yellow): Data rate	100 Mbps	10 Mbps

6.8 IEEE1394 INTERFACE

6.8.1 SPECIFICATIONS

Hardware Specification

Interface: IEEE1394 (6 pins)
(non-power supply, cable power repeated-IEEE1394a-2000 compliant)
Ports: 2 ports
Data rates: 400Mbps/200Mbps/100Mbps

System Requirements

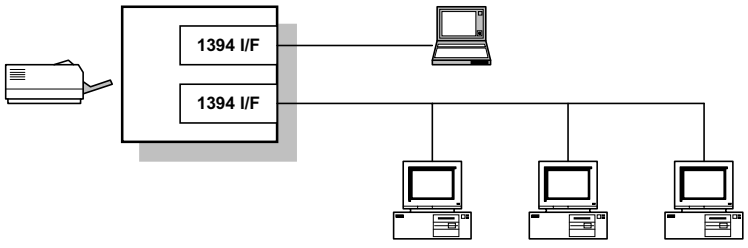
PC: IBM PC/AT with IEEE1394 port
OS: MS Windows 2000 upgraded with service pack 1
Cable length: 4.5m (15ft)

6.8.2 IEEE1394

IEEE1394, also known as FireWire (a name patented by Apple), is an easy-to-use peer-to-peer networking technology allowing speeds of up to 400 Mbps.

The current standard contains the following features, which are supported in most devices:

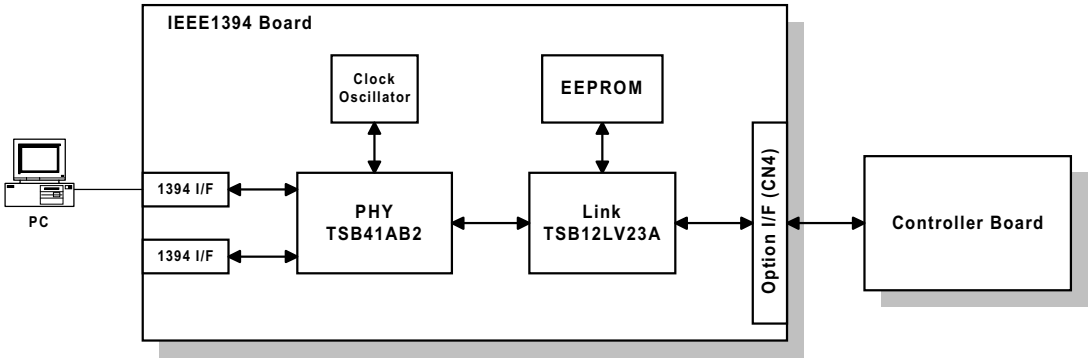
- Hot swapping (cables can be connected and disconnected while the computer and other devices are switched on)
- Peer-to-peer networking (no hub required)
- No terminator or device ID is required, unlike SCSI
- Automatic configuration of devices upon start-up, or “plug and play.”
- Real-time data transfer at 100, 200, and 400 Mbps
- Common connectors for different devices



The cable length is limited to 4.5 m (15ft). However, up to 16 cables and 63 devices can be connected to an IEEE1394 network.

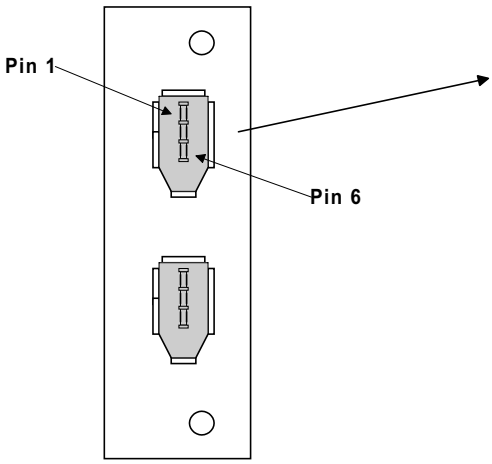
IEEE1394 cables can be either 4-pin (data only) or 6-pin (data and power). IEEE1394 allows either 6-pin or 4-pin connectors. However, this machine only uses the 6-pin connectors. The machine has two 6-pin ports.

6.8.3 BLOCK DIAGRAM



- PHY: Physical layer control device
- Link: Link layer control device
- EEPROM: 256-byte ROM

6.8.4 PIN ASSIGNMENT



Pin assignment	
Pin 1	Pin 4
Pin 2	Pin 3
Pin 5	Pin 6

Pin No.	Signal Description
1	Cable Power
2	GND
3	Receive strobe
4	Transmit data
5	Receive data
6	Transmit strobe

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6.8.5 REMARKS ABOUT THIS INTERFACE KIT

Note the following points about this unit.

- The machine does not print reports specifically for IEEE1394. Just print the Configuration Page at installation to check that the machine recognizes the card.
- There is no spooler or print queue. If a computer tries to print over the IEEE1394 while the printer is busy, the IEEE1394 interface card inside the printer will return a busy signal.
- After starting a job using IEEE1394, do not switch the printer off until the job has been completed. Even though the printer may appear to be dead, it may be in the middle of an IEEE1394 protocol exchange with the computer.
- When using IEEE1394, it is not possible to check the printer status from the computer with a utility such as Printer Manager for Client.

6.8.6 TROUBLESHOOTING NOTES

If there are problems printing using the IEEE1394 interface, check the following.

- Is the computer using Windows 2000 with service pack 1?
- Has the interface card been replaced recently? Each card has an individual address, similar to the MAC address in an Ethernet card. If the card was changed, the driver cannot find the old card. The new card is another device and a new printer appears in Windows Control panel, and this must be configured in the same way as the printer that was replaced (the old printer icon in Windows Control Panel should be deleted) has to be reconfigured.
- Is there a loop somewhere in the network? An IEEE1394 network must be a chain or a branched chain. There can be no loops.
- Try to find out where in the chain the problem is occurring. Test the machine one-to-one with the computer to determine if the printer is defective (when the printer's interface cable is plugged in, the computer should see 'Printer Ready'; when the cable is disconnected, the computer should see 'Offline').

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SPECIFICATIONS

CÓPIA NÃO CONTROLADA

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7 SPECIFICATIONS

7.1 GENERAL SPECIFICATIONS

Printing Speed:	Maximum 26 pages per minute (A4/LT LEF) (20 pages: duplex printing)
Printer Languages:	PCL6/PCL5e PostScript 3 RPCS (Refined Printing Command Stream: an original Ricoh PDL) TIFF (rev 6.0 compatible)
Resolution:	1200 dpi (PCL6/PS3/RPCS) 600 dpi (PCL 6/PCL5e/PS3/RPCS) 300 dpi (PCL 5e/PS3)
Resident Fonts:	PCL: 35 Intellifonts 10 True Type fonts PS3: 136 fonts (24 Type 2 fonts, 112 Type 14 fonts)
Host Interfaces:	Bi-directional IEEE1284 parallel x 1: Standard Ethernet (100 Base-TX/10 Base-T): Standard for G058 IEEE1394: Optional for G056 (G058: Must remove NIB)
Network Protocols:	TCP/IP, IPX/SPX, NetBEUI, Apple Talk
First Print Speed:	6.5 s or less (A4/LT LEF, standard tray)
Warm-up Time	Less than 12 seconds (Less than 19 seconds from power on)
Print Paper Capacity:	Standard tray: 250 sheets Optional paper tray unit: 500 sheets (up to two paper tray units can be installed) Optional by-pass tray: 100 sheets
Print Paper Size:	Maximum: A3/11" x 17" Minimum: Standard tray: A5 LEF Optional paper tray: A5 LEF By-pass: A6/ 90 x 148 mm SEF (Refer to "Supported Paper Sizes".)
Printing Paper Weight:	Standard tray: 60 to 105 g/m^2 (16 to 28 lb.) Optional paper tray: 60 to 105 g/m^2 (16 to 28 lb.) By-pass tray: 52 to 162 g/m^2 (14 to 43 lb.)
Output Paper Capacity:	Standard output tray: 250 sheets Optional 1-bin shift tray: 250 sheets Optional 4-bin mailbox: 200 sheets total

CÓPIA NÃO CONTROLADA

GENERAL SPECIFICATIONS

Memory: Standard 32 MB, up to 96 MB with optional DIMM

Power Source: 120 V, 60 Hz: More than 10 A (for North America)
220 V - 240 V, 50/60 Hz: More than 6.0 A (for Europe)

Power Consumption:

	120V	230V
Maximum	940 W or less	940 W or less
Printing	650 W or less	650 W or less
Energy Saver	22 W or less	22 W or less

Noise Emission:

	Mainframe Only	Full System
Printing	64 dB or less	68 dB or less
Stand-by	40 dB or less	40 dB or less

NOTE: The above measurements were made in accordance with ISO 9296 at the operator position.

Dimensions (W x D x H): 468 x 437 x 305 mm

Weight: Less than 18 kg

CÓPIA NÃO CONTROLADA

7.1.1 SUPPORTED PAPER SIZES

Paper	Size (W x L)	Paper Trays Main Unit/Option		By-pass Tray	Env. Feeder	Duplex
		US	Eur/Asia			
A3	297 x 420 mm	Y#/Y#	Y/Y	Y#	N	Y
B4	257 x 364 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A4 SEF	210 x 297 mm	Y#/Y#	Y/Y	Y#	N	Y
A4 LEF	297 x 210 mm	Y/Y	Y/Y	Y#	Y	Y
B5 SEF	182 x 257 mm	Y#/Y#	Y#/Y#	Y#	N	Y
B5 LEF	257 x 182 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A5 SEF	148 x 210 mm	N	N	Y#	N	N
A5 LEF	210 x 148 mm	Y#/Y#	Y/Y#	Y#	N	Y
B6 SEF	128 x 182 mm	N	N	YC	N	N
B6 LEF	182 x 128 mm	N	N	N	N	N
A6 SEF	105 x 148 mm	N	N	YC	N	N
Ledger	11 x 17”	Y/Y	Y#/Y#	Y#	N	Y
Legal	8.5 x 14“	Y/Y	Y#/Y#	Y#	N	Y
Letter SEF	8.5 x 11”	Y/Y	Y/Y	Y#	N	Y
Letter LEF	11 x 8.5”	Y/Y	Y/Y	Y#	N	Y
Half Letter SEF	5.5 x 8.5”	N	N	Y#	N	N
Half Letter LEF	8.5 x 5.5”	N	N	N	N	N
Executive SEF	7.25 x 10.5”	N/Y#	N/Y#	Y#	N	N
Executive LEF	10.5 x 7.25”	Y#/Y#	Y#/Y#	Y#	N	Y
F	8 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Foolscap	8.5 x 13”	Y/Y#	Y#/Y#	Y#	N	Y
Folio	8.25 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Com10 Env.	4.125 x 9.5”	N	N	Y#	Y#	N
Monarch Env.	3.875 x 7.5”	N	N	Y#	Y#	N
C6 Env.	114 x 162 mm	N	N	Y#	Y#	N
C5 Env.	162 x 229 mm	N	N	Y#	Y#	N
DL Env.	110 x 220 mm	N	N	Y#	Y#	N
8K	267 x 390 mm	N/Y#	N/Y#	Y#	N	Y
16K SEF	195 x 267 mm	N/Y#	N/Y#	Y#	N	Y
16K LEF	267 x 195 mm	N/Y#	N/Y#	Y#	N	Y
Custom	Minimum: 90 x 148 mm Maximum: 297 x 432 mm	N/YC	N/YC	YC	N	N

Remarks:

Y	Supported. The paper size sensor detects the paper size.
Y#	Supported. The user has to select the correct paper size for the tray.
YC	Supported. The user has to enter the width and length of the paper.
N	Not supported.

7.2 SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

7.2.1 PRINTER DRIVERS

Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

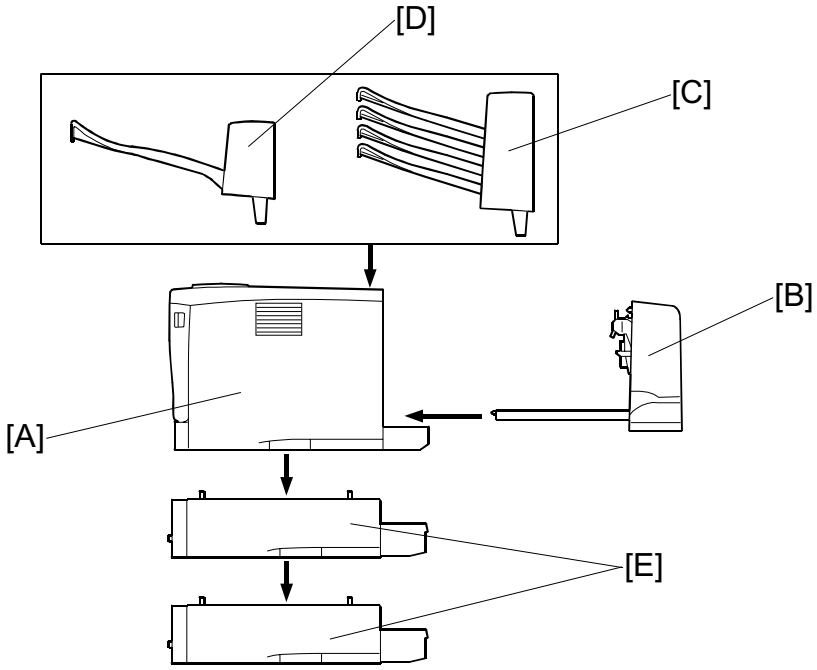
NOTE: 1) The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
2) The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.
3) The PS3 driver for Macintosh supports Mac OS 7.6 or later versions.

7.2.2 UTILITY SOFTWARE

Software	Description
Agfa Font Manager (Win3.1x, 95/98, NT4)	A font management utility with screen fonts for the printer.
Aficio Manager for Admin (Win 95/98, NT4)	A printer management utility for network administrators. NIB setup utilities are also available.
Aficio Manager for Client (Win95/98, NT4)	A printer management utility for client users.
Multidirect Print (Win95/98, 2000, NT4,)	A utility for peer-to-peer printing over a NetBEUI or TCP/IP network.
Port Navi (Win95/98, 2000, NT4)	A peer to peer print utility over a TCP/IP network. This provides the parallel printing and recovery printing features.
Printer Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.

7.3 MACHINE CONFIGURATION

7.3.1 SYSTEM COMPONENTS



Item	Machine Code	No.	Remarks
Main Unit	G058 G056	A	G058: Includes the NIB as standard
Option			
Duplex Unit	G552	B	
4-bin Mailbox	G553	C	
1-bin Shift Tray	G554	D	
Paper Tray Unit	G555	E	Up to two tray units can be installed.
Envelope Feeder	G556	E	When two paper tray units are installed, it must be installed in the upper unit.
Internal Option			
NIB	G573		Standard component for G058
IEEE1394	G561		To install in the G058, remove the NIB first.
HDD	G575		
Memory 64 MB	G579		
Others			
Maintenance Kit	G770		

NOTE: 1) All the above items are user installable.
2) The NIB and the IEEE1394 board cannot be installed at the same time. To install the IEEE1394 in the G058, remove the NIB first.

Specifications

CÓPIA NÃO CONTROLADA

7.4 OPTIONAL EQUIPMENT

7.4.1 PAPER TRAY UNIT

Print Paper Size:	Maximum: A3/11” x 17” Minimum: A5 LEF
Print Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Tray Capacity:	500 sheets (80 g/m^2, 20 lb.) Two units can be installed.
Paper Feed System:	Feed roller and friction pad
Paper Height Detection:	4 steps (100%, 90%, 50%, 10%)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	15 W
Dimensions (W x D x H):	468 x 410 x 130 mm
Weight	5.6 kg

7.4.2 ENVELOPE FEEDER

Print Paper Size:	Com#10, Monarch, C6, DL, C5
Tray Capacity:	60, or up to the level of the maximum stack indication (52 mm)
Paper Feed System:	Feed roller and friction pad
Paper Height Detection:	None
Weight	1.9 kg

7.4.3 DUPLEX UNIT

Print Paper Size:	Maximum: A3/11" x 17" Minimum: A5 SEF
Print Paper Weight:	64 to 105 g/m^2 (18 to 28 lb.)
Paper Capacity:	1 sheet
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	35 W
Dimensions (W x D x H):	419 x 115 x 257 mm (when installed in the machine)
Weight	6 kg

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7.4.4 FOUR-BIN MAILBOX

Number of Trays	4 trays
Tray Capacity:	50 sheets (80 g/m^2, 20 lb.)
Paper Size for Trays:	Maximum: A3/11" x 17" Minimum: A5 LEF
Print Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	15 W
Dimensions (W x D x H):	462 x 391 x 285 mm (when installed in the machine)
Weight	5.3 kg

7.4.5 ONE-BIN SHIFT TRAY

Print Paper Size:	Maximum: A3/11" x 17" Minimum: A5 LEF
Print Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Tray Capacity:	250 sheets (80 g/m^2, 20 lb.)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	12 W
Dimensions (W x D x H):	462 x 393 x 160 mm (when installed in the machine)
Weight	2.6 kg

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G555
PAPER TRAY UNIT

G556
ENVELOPE FEEDER

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1. REPLACEMENT AND ADJUSTMENT

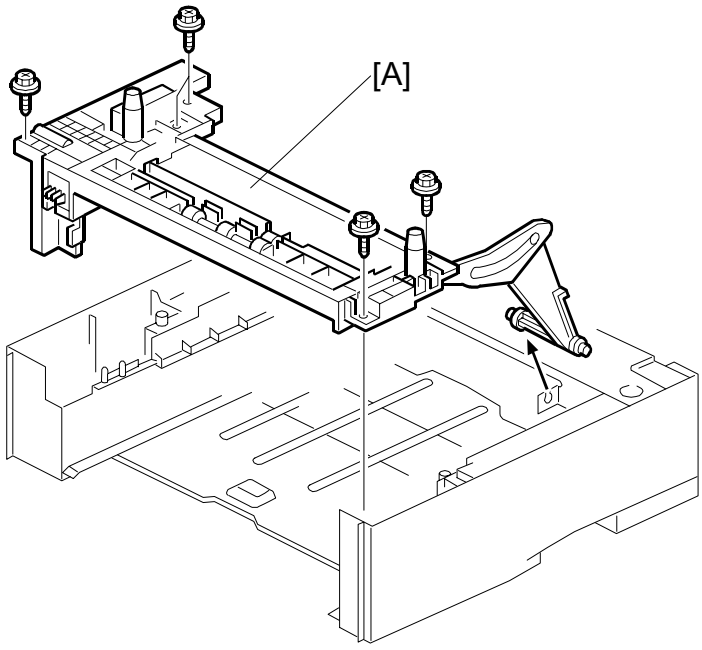
⚠CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

NOTE: This manual uses several symbols. The meanings of those symbols are as follows:

☛: See or Refer to
: screw
: connector

1.1 PAPER FEED UNIT



- Remove the paper tray unit from the main unit.
- Draw out the paper tray.

[A]: Remove the paper feed unit (x5).

CÓPIA NÃO CONTROLADA

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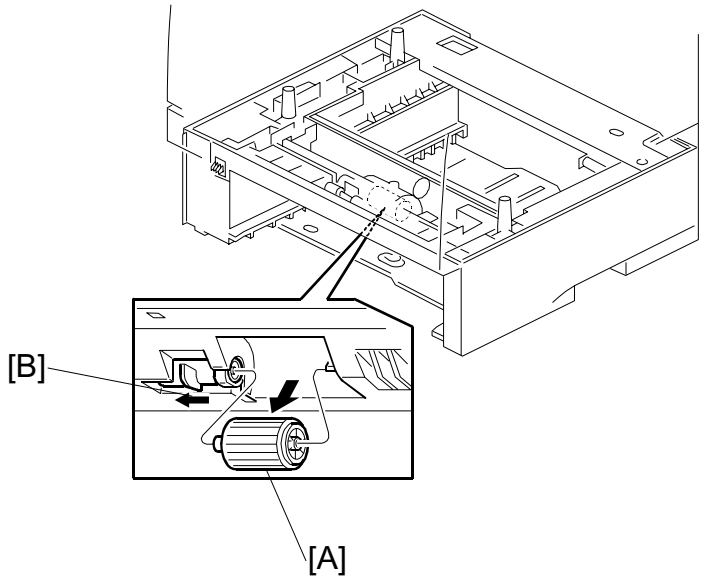
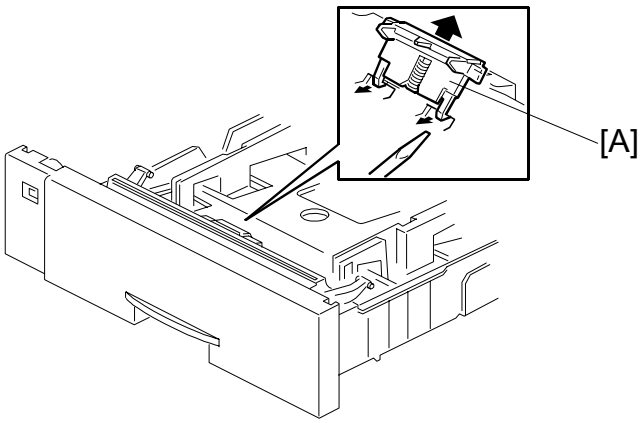
1.2 PAPER FEED ROLLER



- Draw out the paper tray

[A]: Paper feed roller (move the lever [B] to the left)

1.3 FRICTION PAD



- Draw out the paper tray.

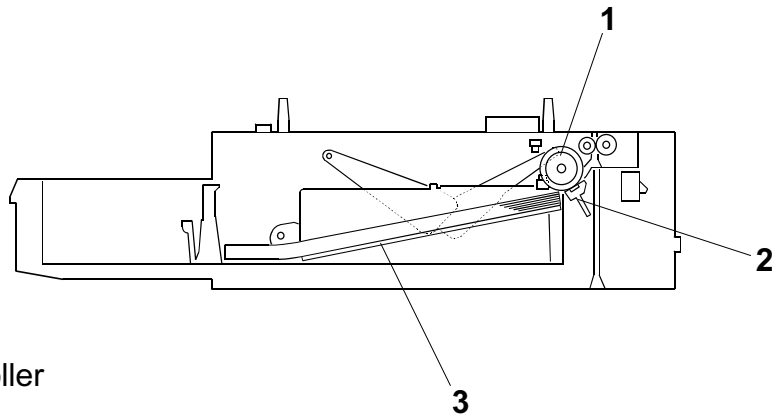
[A]: Friction pad

CÓPIA NÃO CONTROLADA

2. DETAILED DESCRIPTIONS

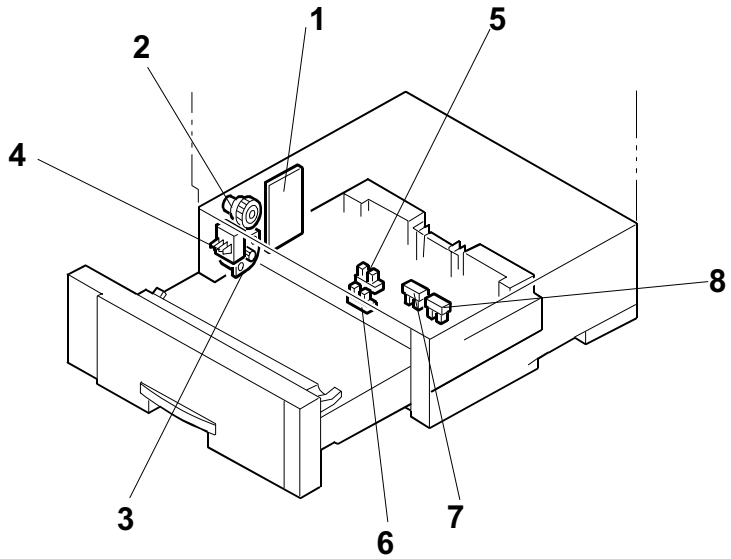
2.1 OVERALL MACHINE INFORMATION

2.1.1 MECHANICAL COMPONENT LAYOUT



1. Paper feed roller
2. Friction pad
3. Bottom plate

2.1.2 ELECTRICAL COMPONENT LAYOUT

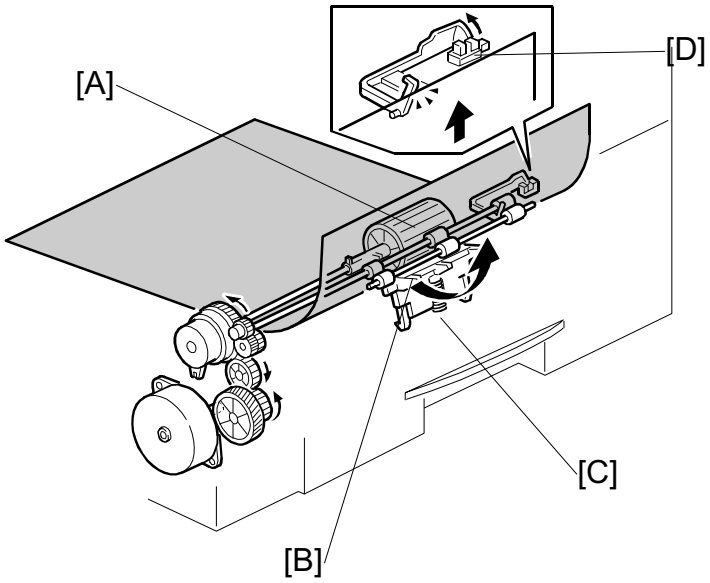


1. Paper tray board
2. Paper feed clutch
3. Paper feed motor
4. Paper size switch
5. Paper end sensor
6. Paper feed sensor
7. Paper height sensor
8. Paper height sensor

CÓPIA NÃO CONTROLADA

2.2 DETAILED SECTION DESCRIPTIONS

2.2.1 PAPER FEED AND SEPARATION



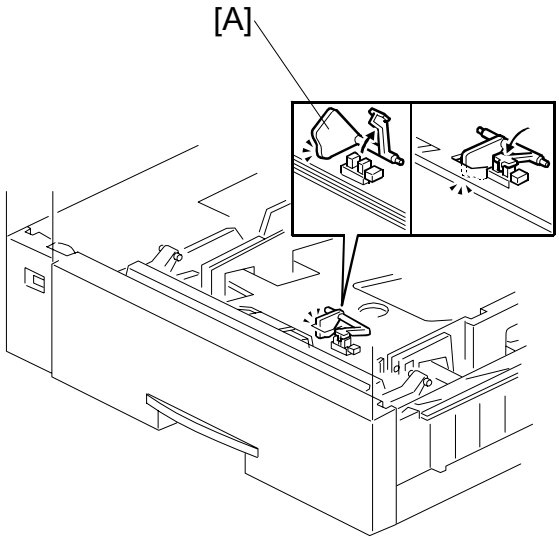
- The paper tray holds 500 sheets.
- The paper feed unit uses a feed roller and friction pad mechanism.
  [A]: Paper feed roller
  [B]: Friction pad
  [C]: Pressure spring
  [D]: Paper feed sensor

CÓPIA NÃO CONTROLADA

2.2.2 PAPER LIFT

Paper lift is the same as for the main unit.

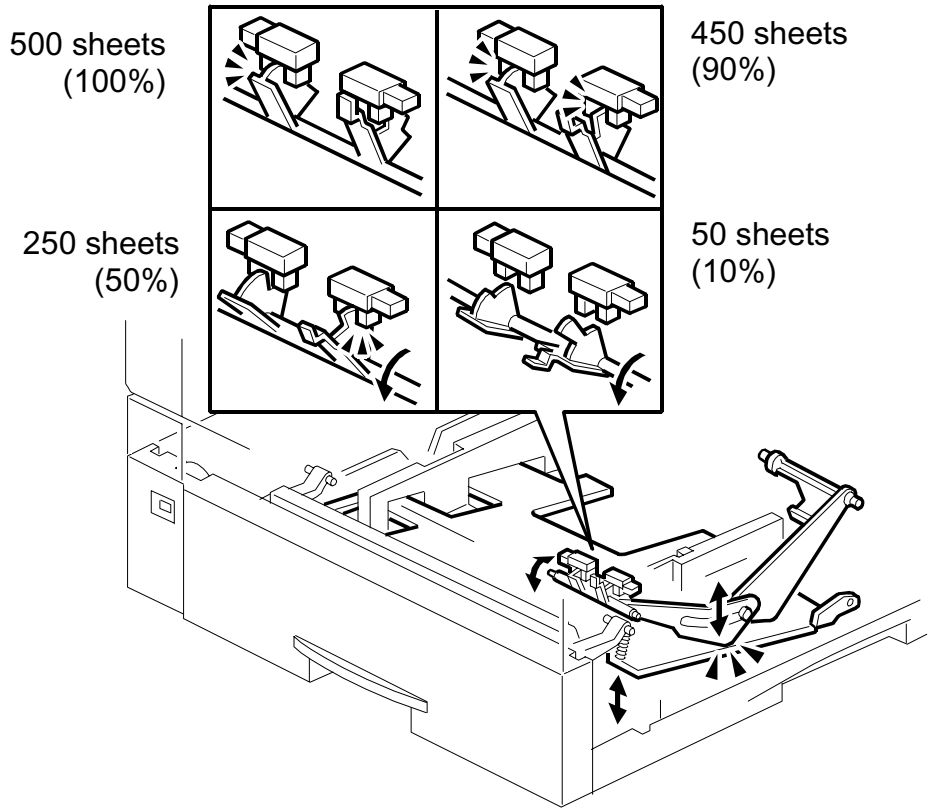
2.2.3 PAPER END DETECTION



- When the paper tray runs out of paper, the feeler [A] drops into the cutout in the bottom plate to actuate the paper end sensor.

2.2.4 PAPER HEIGHT DETECTION

- The paper height is detected by the combination of the paper height sensor signals. The signals from the sensors indicate whether there are 450, 250, or 50 sheets remaining.



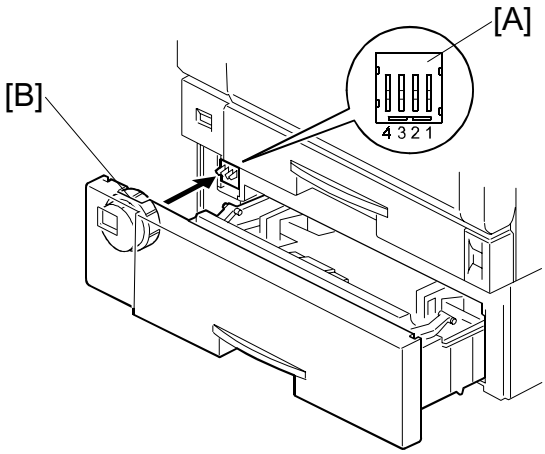
Amount of paper	Paper height sensor 1	Paper height sensor 2
50 sheets	OFF	OFF
250 sheets	OFF	ON
450 sheets	ON	ON
500 sheets	ON	OFF

OFF: Unblocked, ON: Blocked

2.2.5 PAPER SIZE DETECTION

SW / Size	1	2	3	4
A3	l	l	l	l
A4 LEF (Long Edge Feed)	l	l	m	m
A4 SEF (Short Edge Feed)	l	l	l	m
8 1/2" x 11" LEF	l	m	m	l
11" x 17"	l	m	l	l
14" x 8 1/2" SEF	l	m	l	m
11" x 8 1/2" SEF	l	l	m	l
* (Asterisk)	l	m	m	m

m : ON (Not pushed)
l : OFF (Pushed)



[A]: Paper size switch
[B]: Paper size dial

- The machine disables paper feed from a tray if the paper size cannot be detected (if the paper size actuator is broken or no tray is installed)
- When the paper size dial is at the "*" mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using a User Tool at the machine's operation panel (Paper Input menu – Tray Paper Size).

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3. ENVELOPE FEEDER

3.1 OVERALL MACHINE INFORMATION

3.1.1 MECHANICAL COMPONENT LAYOUT

- This optional unit is a tray that slides into the optional paper feed unit, replacing the paper tray.
- If two optional trays have been installed, the envelope feeder must go into the top tray.
- The layout is the same as the paper tray.
- The friction pad in this unit is rubber-coated. The friction pad in the paper tray unit is made of cork.

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G552
DUPLEX UNIT

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1. REPLACEMENT AND ADJUSTMENT

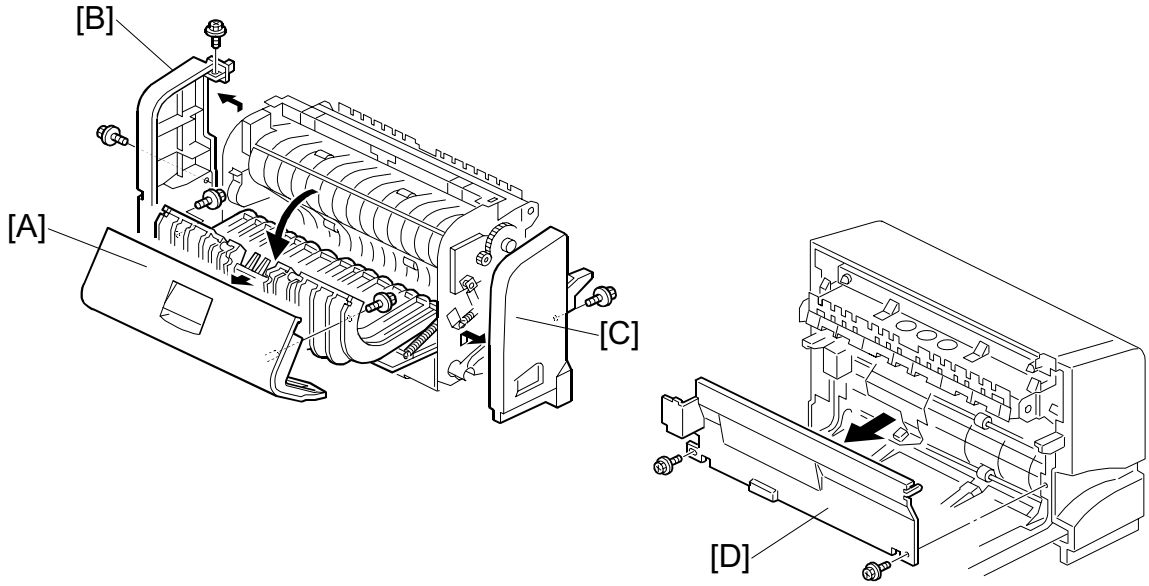
⚠CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

NOTE: This manual uses several symbols. The meanings of those symbols are as follows:

☛: See or Refer to
: screw
: connector

1.1 EXTERIOR COVERS

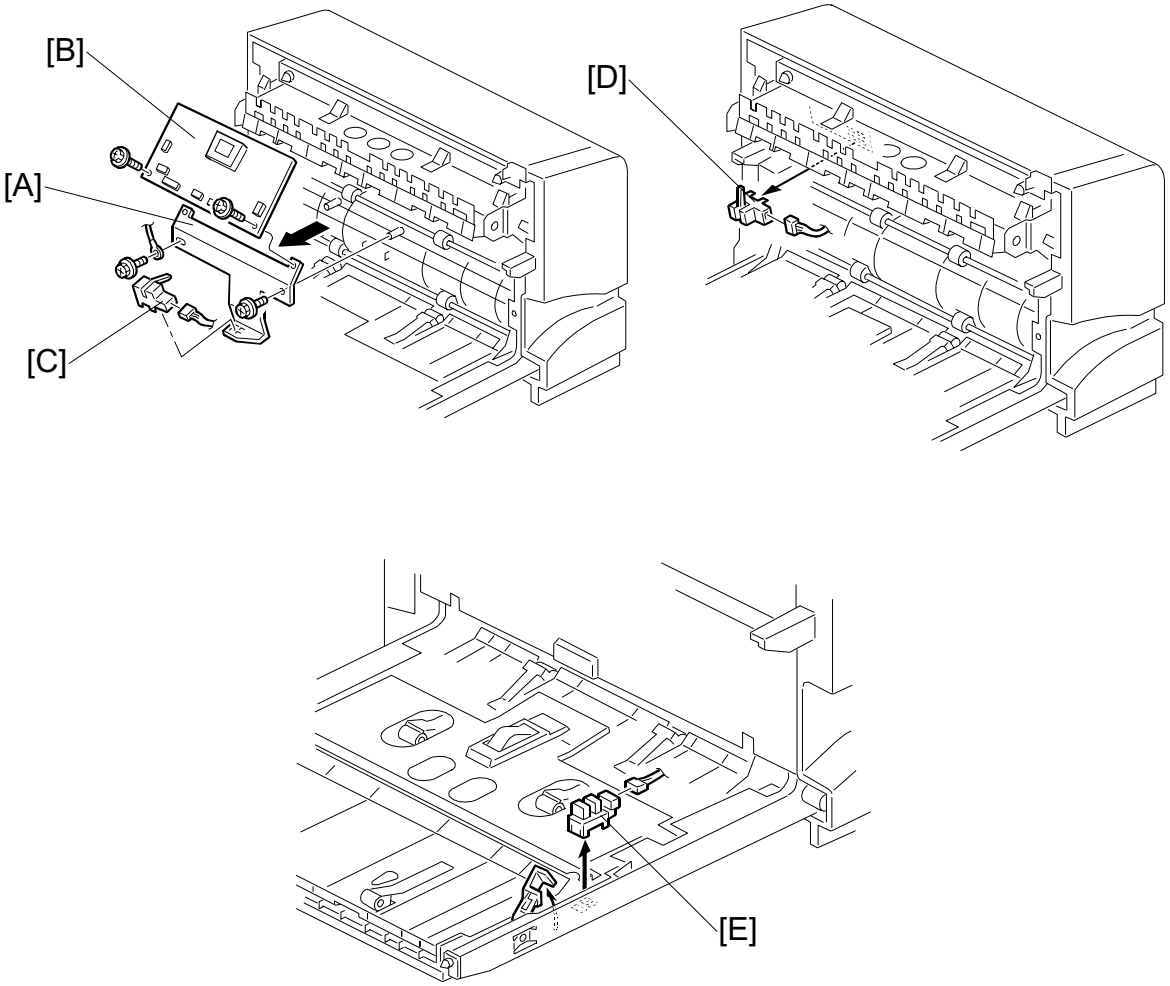


- Remove the duplex unit from the main unit.
- Open the upper cover [A].

[A]: Upper cover (x2)
[B]: Right cover (x2)
[C]: Left cover (x1)
[D]: Front cover (x2)

CÓPIA NÃO CONTROLADA

1.2 DUPLEX BOARD AND SENSORS



- Front cover (☛ Exterior Covers)

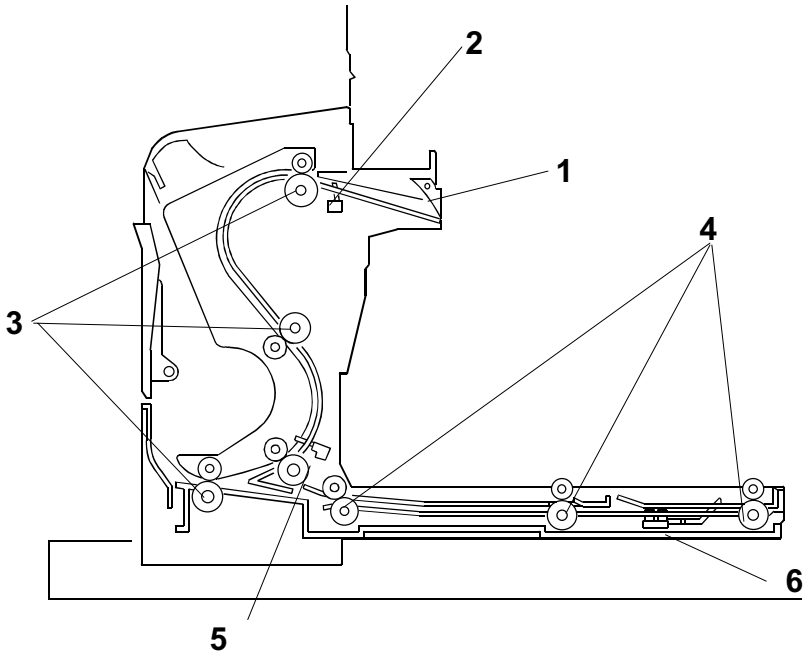
[A]: Duplex board bracket (🔩 x2)
[B]: Duplex board (🔩 x2, all connectors)
[C]: Inverter sensor (✋ x1)
[D]: Entrance sensor (✋ x1)
[E]: Exit sensor (✋ x1)

CÓPIA NÃO CONTROLADA

2. DETAILED DESCRIPTION

2.1 OVERALL MACHINE INFORMATION

2.1.1 MECHANICAL COMPONENT LAYOUT



1. Junction gate
2. Entrance sensor
3. Inverter rollers
4. Transport rollers
5. Transport sensor
6. Exit sensor

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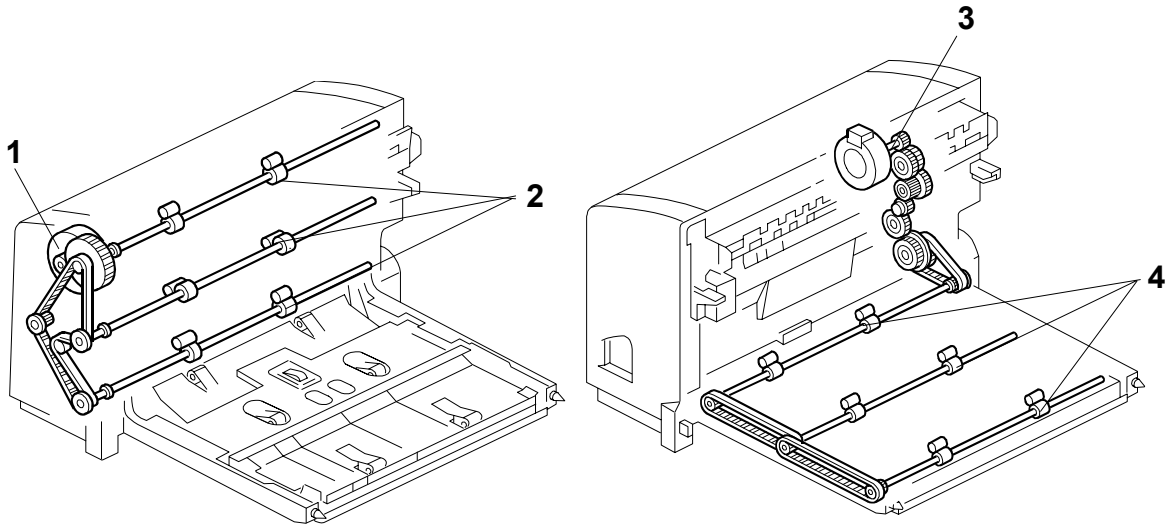
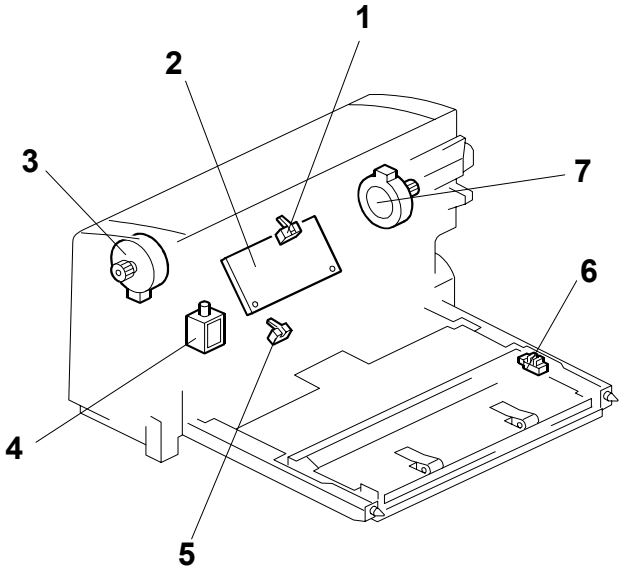
2.1.2 DRIVE LAYOUT



1. Inverter motor
2. Inverter rollers
3. Transport motor
4. Transport rollers

2.1.3 ELECTRICAL COMPONENT LAYOUT

1. Entrance sensor
2. Duplex board
3. Inverter motor
4. Junction gate solenoid
5. ⇒ Inverter sensor
6. ⇒ Exit sensor
7. Transport motor



CÓPIA NÃO CONTROLADA

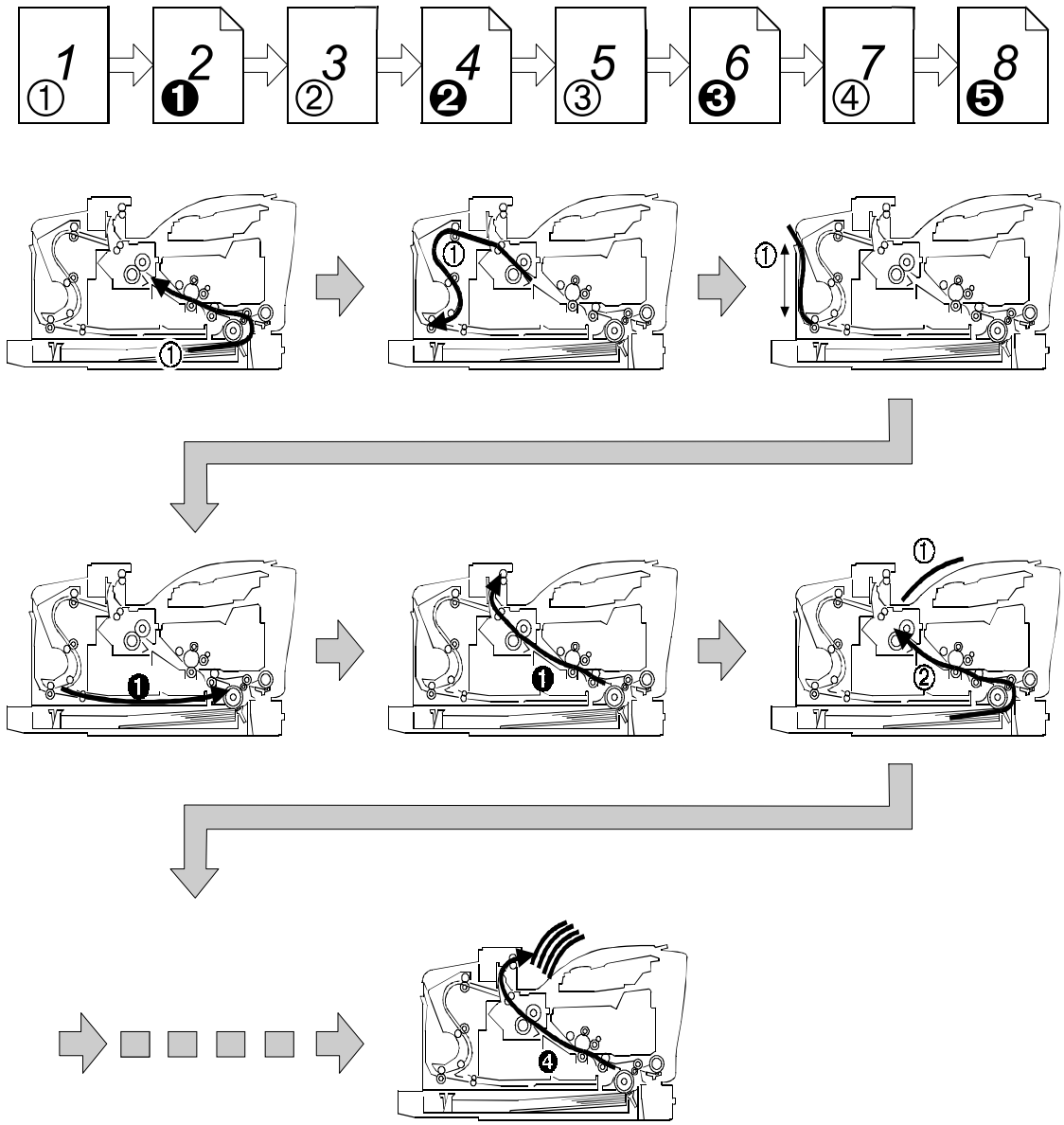
2.2 DETAILED SECTION DESCRIPTIONS

2.2.1 BASIC OPERATION

Longer than A4 LEF/LT LEF

- The duplex unit can store only one sheet of paper.

Example: 8 pages. The center number in the illustration shows the order of pages. The number with the circle in the illustration shows the order of sheets of print paper (if highlighted, this indicates the second side).

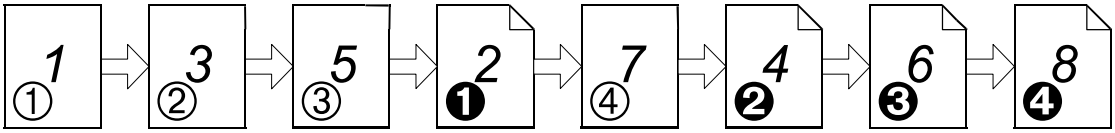


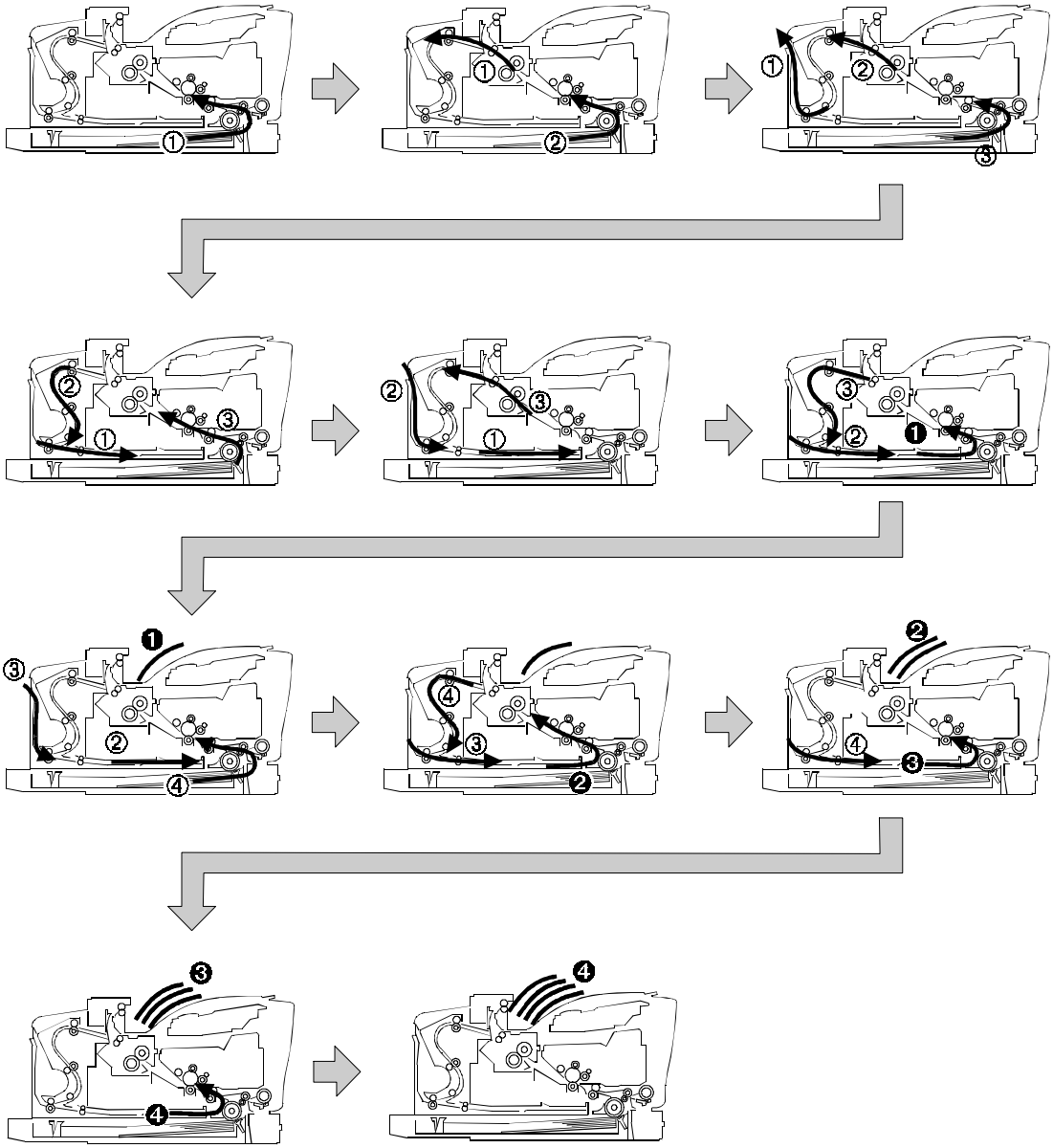
CÓPIA NÃO CONTROLADA

Length up to A4 LEF/LT LEF

- The duplex unit can store three sheets of paper

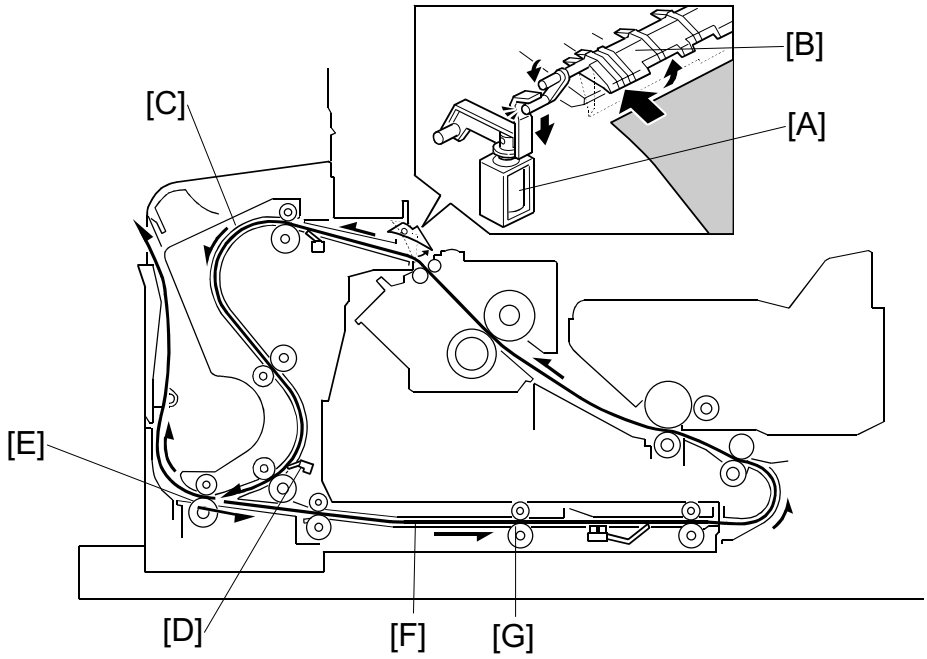
Example: 8 pages. The center number in the illustration shows the order of pages. The number with the circle in the illustration shows the order of sheets of print paper (if highlighted, this indicates the second side).





CÓPIA NÃO CONTROLADA

2.2.2 FEED IN AND EXIT MECHANISM



Feeding paper into the duplex unit:

- The junction gate solenoid [A] turns on to open the junction gate [B].
- The paper fed from the main frame is sent to the inverter section [C].

Inversion and exit:

- After the trailing edge of the paper passes the inverter sensor [D], the inverter roller [E] changes its rotation direction and the paper goes to the transport area [F].
- The transport rollers [G] send the paper to the registration rollers in the main frame.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

G553
FOUR-BIN MAILBOX

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1. REPLACEMENT AND ADJUSTMENT

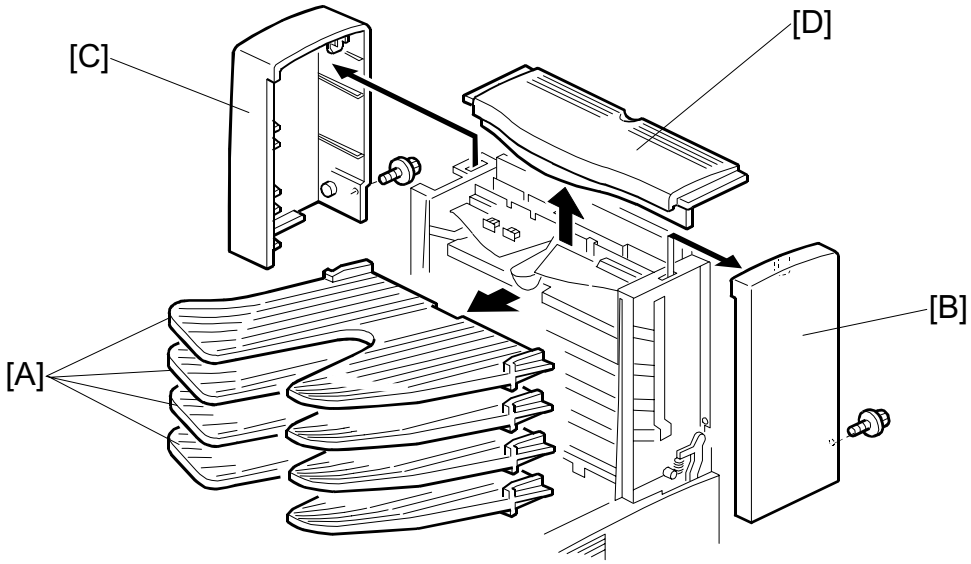
⚠CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

NOTE: This manual uses several symbols. The meanings of those symbols are as follows:

☛: See or Refer to
: screw
: connector

1.1 EXTERIOR COVERS

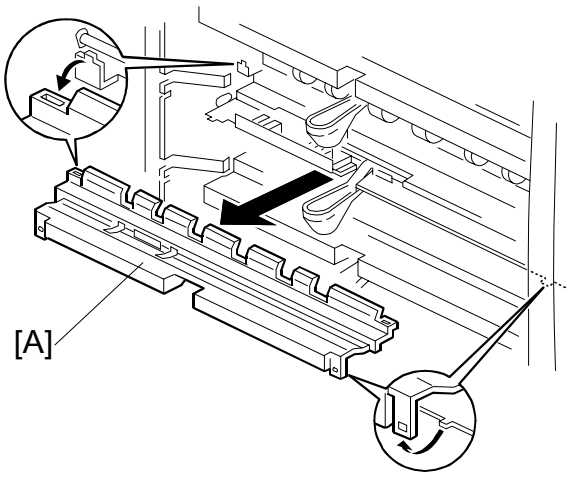


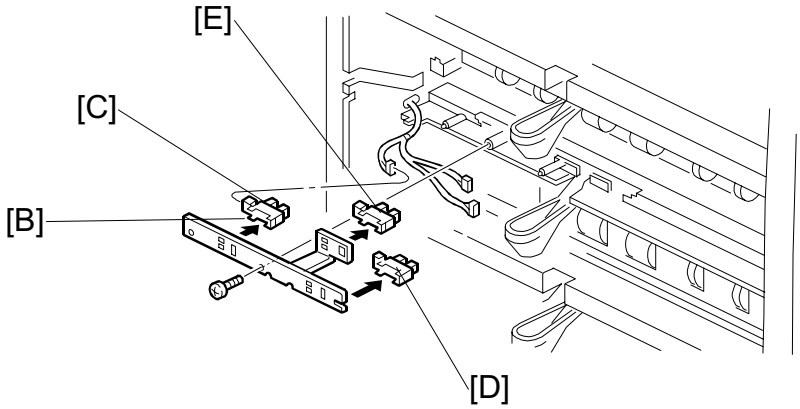
[A]: Each tray
[B]: Right cover (x1)
[C]: Left cover (x1)
[D]: Upper cover

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1.2 OVERFLOW AND VERTICAL TRANSPORT SENSORS





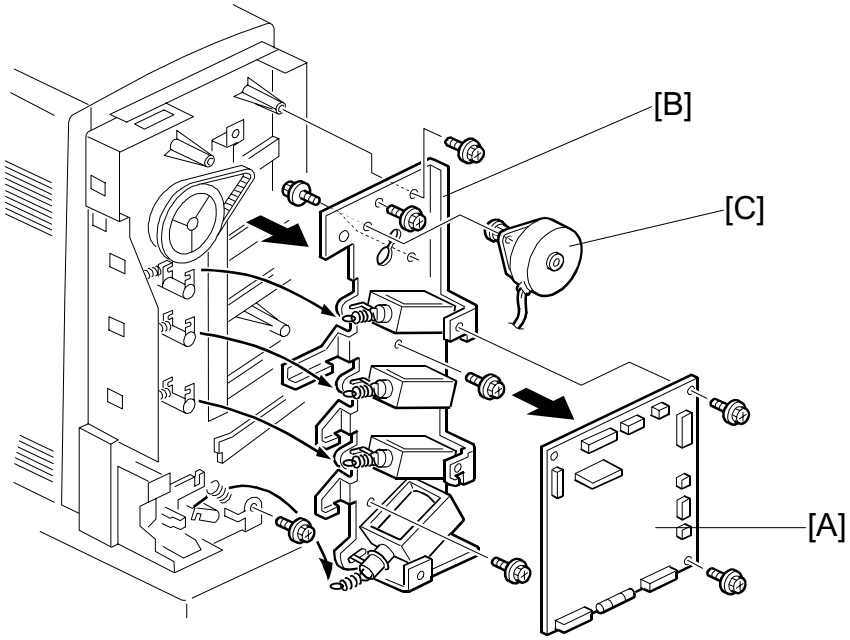
- Each tray (☛ Exterior Covers)

[A]: Each tray cover
[B]: Sensor holder (🔩 x1)
[C]: Tray paper sensor (x1)
[D]: Overflow sensor (x1)
[E]: Vertical transport sensor (x1)

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1.3 MAIN MOTOR



- Left cover (☛ Exterior Covers)

[A]: Mailbox board (🔩 x2, 🖑 x11)
[B]: Drive bracket (🔩 x5)
[C]: Main motor (🔩 x2)

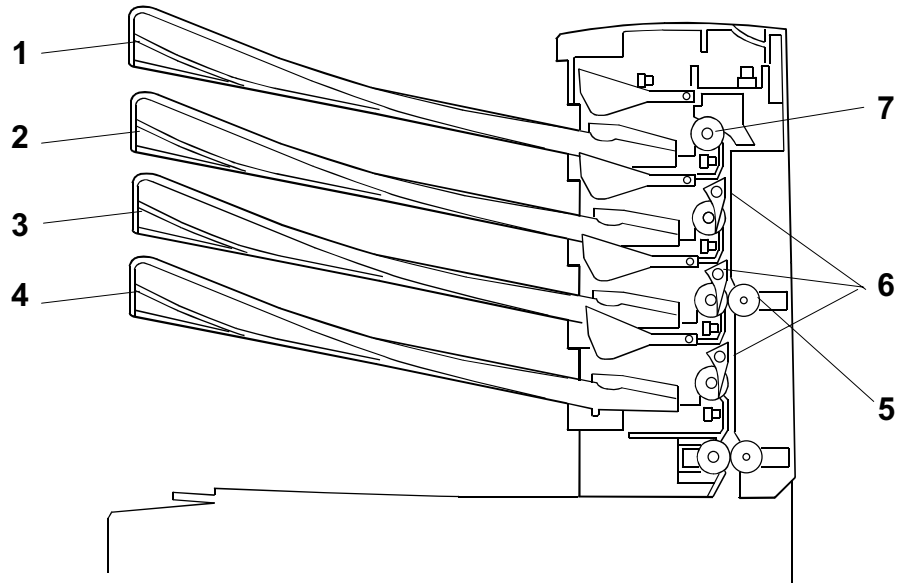
CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

2. DETAILED DESCRIPTIONS

2.1 OVERALL MACHINE INFORMATION

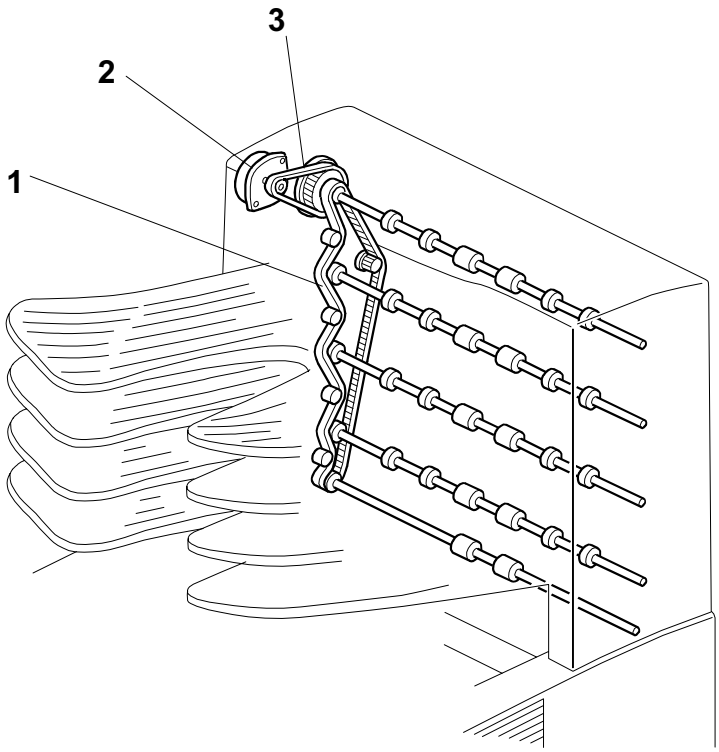
2.1.1 MECHANICAL COMPONENT LAYOUT



1. 4th tray
2. 3rd tray
3. 2nd tray
4. 1st tray
5. Vertical transport roller
6. Turn gate
7. Exit roller

CÓPIA NÃO CONTROLADA

2.1.2 DRIVE LAYOUT

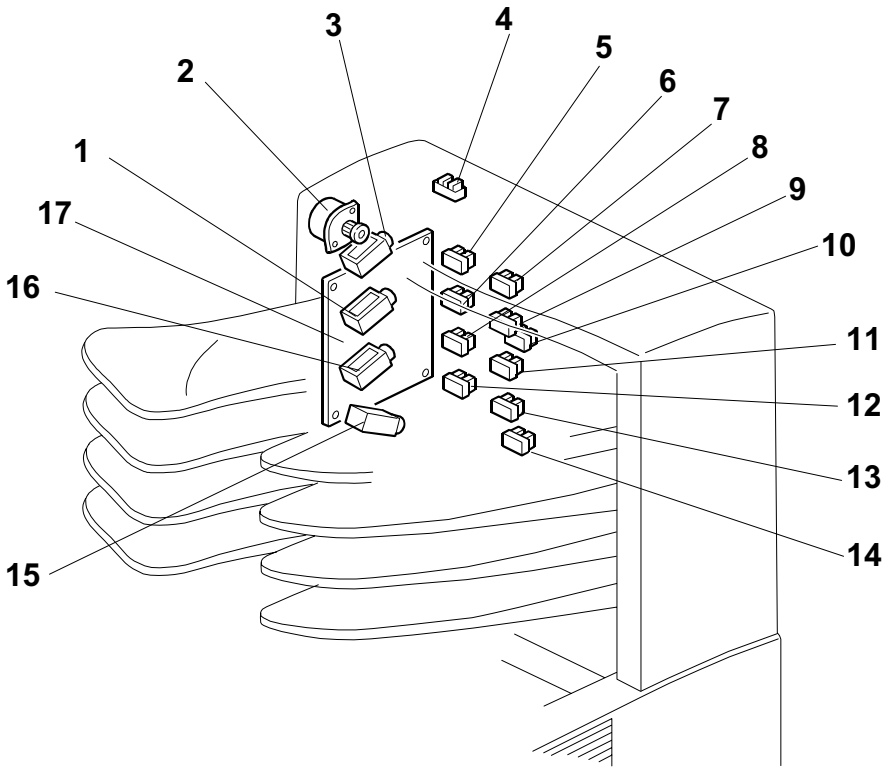


1. Timing belt
2. Main motor
3. Main motor timing belt

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

2.1.3 ELECTRICAL COMPONENT LAYOUT

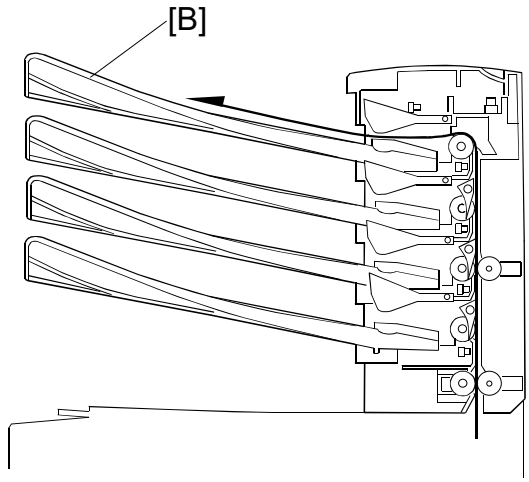


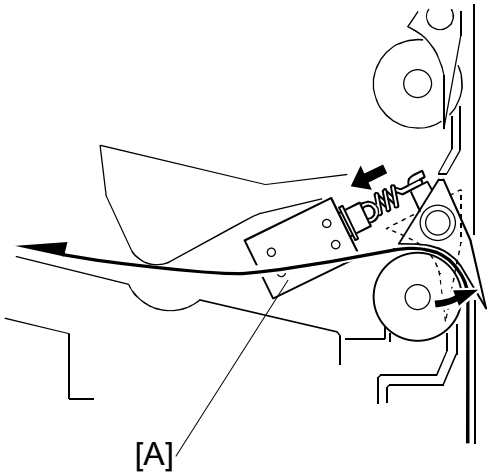
1. 2nd turn gate solenoid
2. Main motor
3. 3rd turn gate solenoid
4. Cover sensor
5. 4th tray paper sensor
6. 3rd tray paper sensor
7. 4th tray overflow sensor
8. 2nd tray paper sensor
9. 3rd tray overflow sensor
10. Upper vertical transport sensor
11. 2nd tray overflow sensor
12. 1st tray paper sensor
13. 1st tray overflow sensor
14. Lower vertical transport sensor
15. Junction gate solenoid
16. 1st turn gate solenoid
17. Mailbox board

CÓPIA NÃO CONTROLADA

2.2 DETAILED SECTION DESCRIPTIONS

2.2.1 BASIC OPERATION





- When the leading edge of the paper activates the exit sensor on the main unit, the mailbox main motor turns on.
- Each turn gate solenoid [A] opens and closes its turn gate, to direct the paper to the selected tray [B].
- When the top tray (4th tray) is selected, none of the solenoids are activated.
- After the last sheet passes the upper or lower vertical transport sensor (depending on the selected tray), the main motor, junction gate solenoid, and the turn gate solenoid for the selected tray turn off.

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

G554
ONE-BIN SHIFT TRAY

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1. REPLACEMENT AND ADJUSTMENT

⚠CAUTION

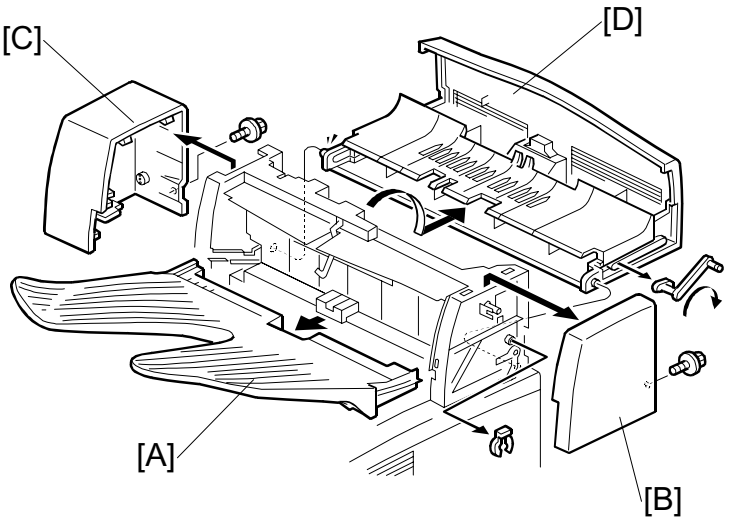
Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

NOTE: This manual uses several symbols. The meanings of those symbols are as follows:

☛: See or Refer to
: screw
: connector

1.1 EXTERIOR COVERS

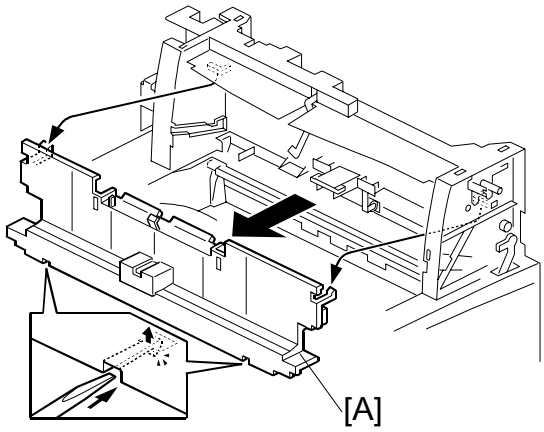
[A]: Tray
[B]: Right cover (x1)
[C]: Left cover (x1)
[D]: Upper cover (1 snap-ring)

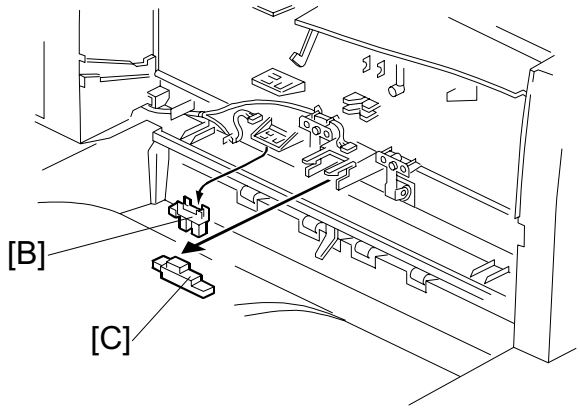


CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

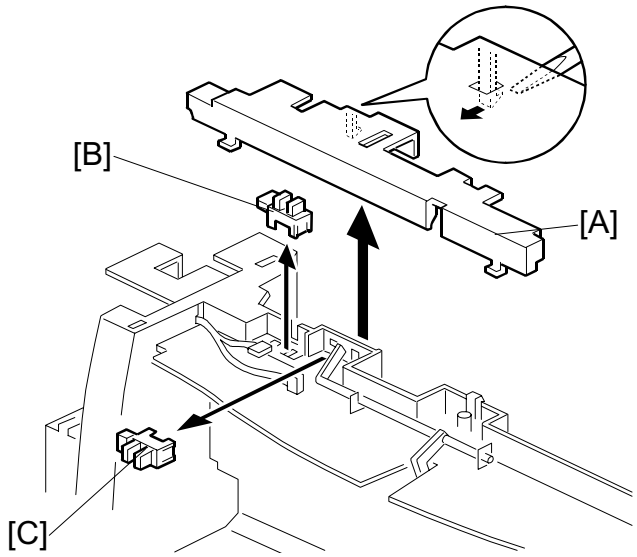
1.2 SHIFT TIMING AND TRAY PAPER SENSORS





Right cover (☛ Exterior Covers)
[A]: Tray cover
[B]: Shift timing sensor (🖑 x1)
[C]: Tray paper sensor (🖑 x1)

1.3 COVER AND OVERFLOW SENSORS

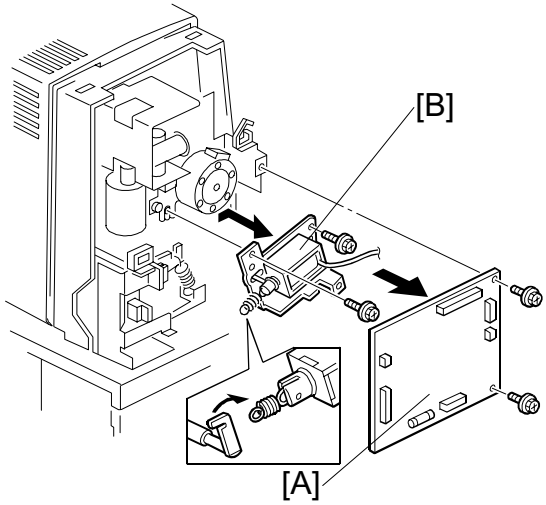


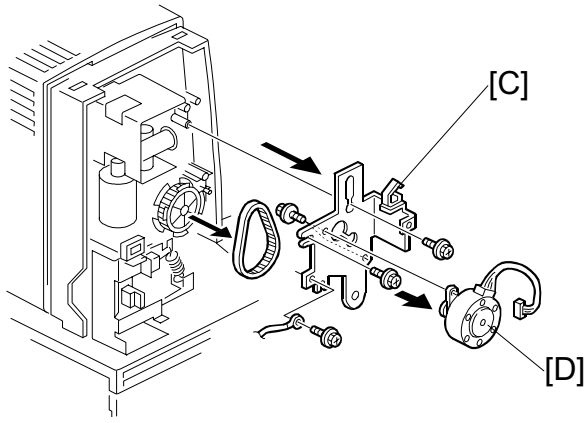
[A]: Sensor cover
[B]: Cover sensor (🖑 x1)
[C]: Overflow sensor (🖑 x1)

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1.4 MAIN MOTOR





Left cover (☛ Exterior Covers)

[A]: Shift tray board (x2, x6)
[B]: Junction gate solenoid (x2)
[C]: Main motor bracket (x3)
[D]: Main motor (x2)

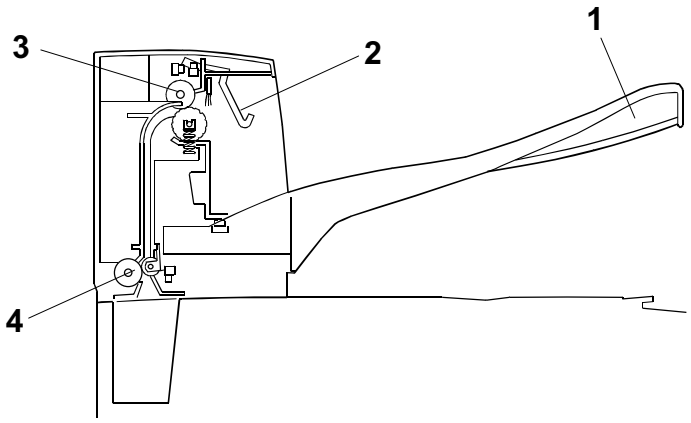
CÓPIA NÃO CONTROLADA

2. DETAILED DESCRIPTIONS

2.1 OVERALL MACHINE INFORMATION

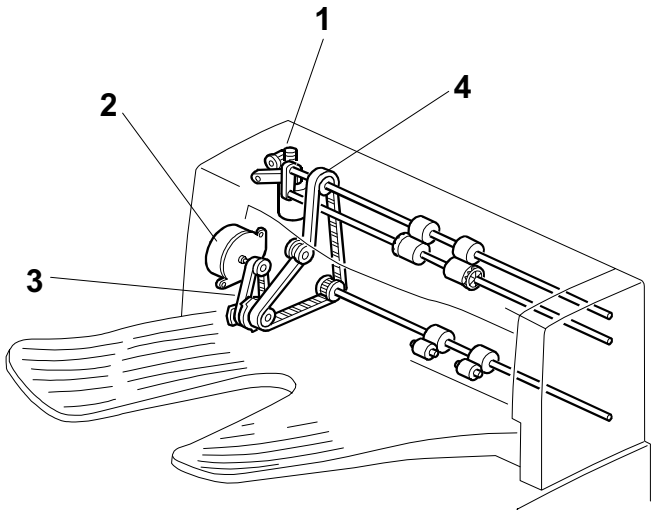
2.1.1 MECHANICAL COMPONENT LAYOUT

1. Tray
2. Overflow sensor feeler
3. Exit roller
4. Transport roller



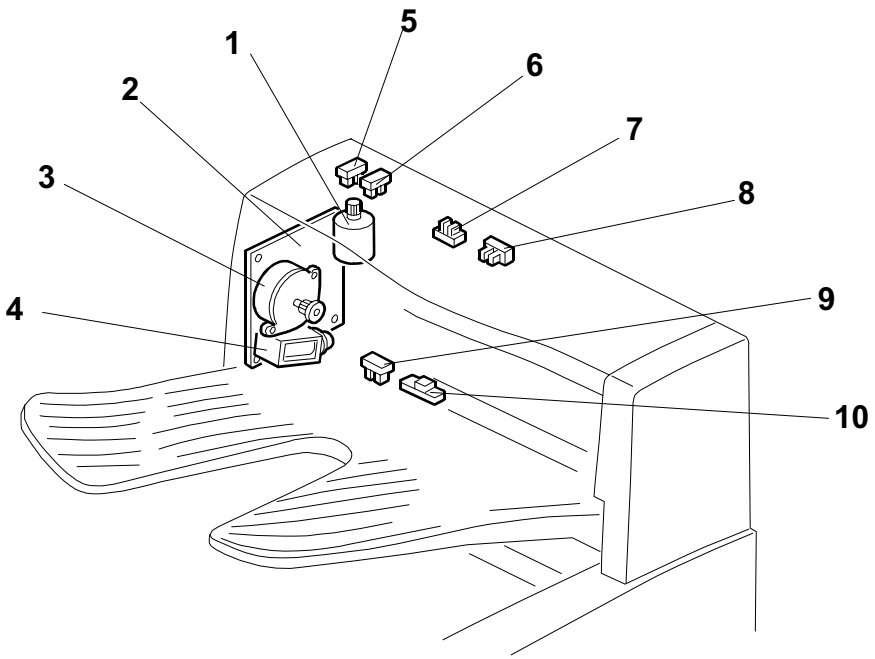
2.1.2 DRIVE LAYOUT

1. Shift motor
2. Main motor
3. Main motor timing belt
4. Timing belt



CÓPIA NÃO CONTROLADA

2.1.3 ELECTRICAL COMPONENT LAYOUT

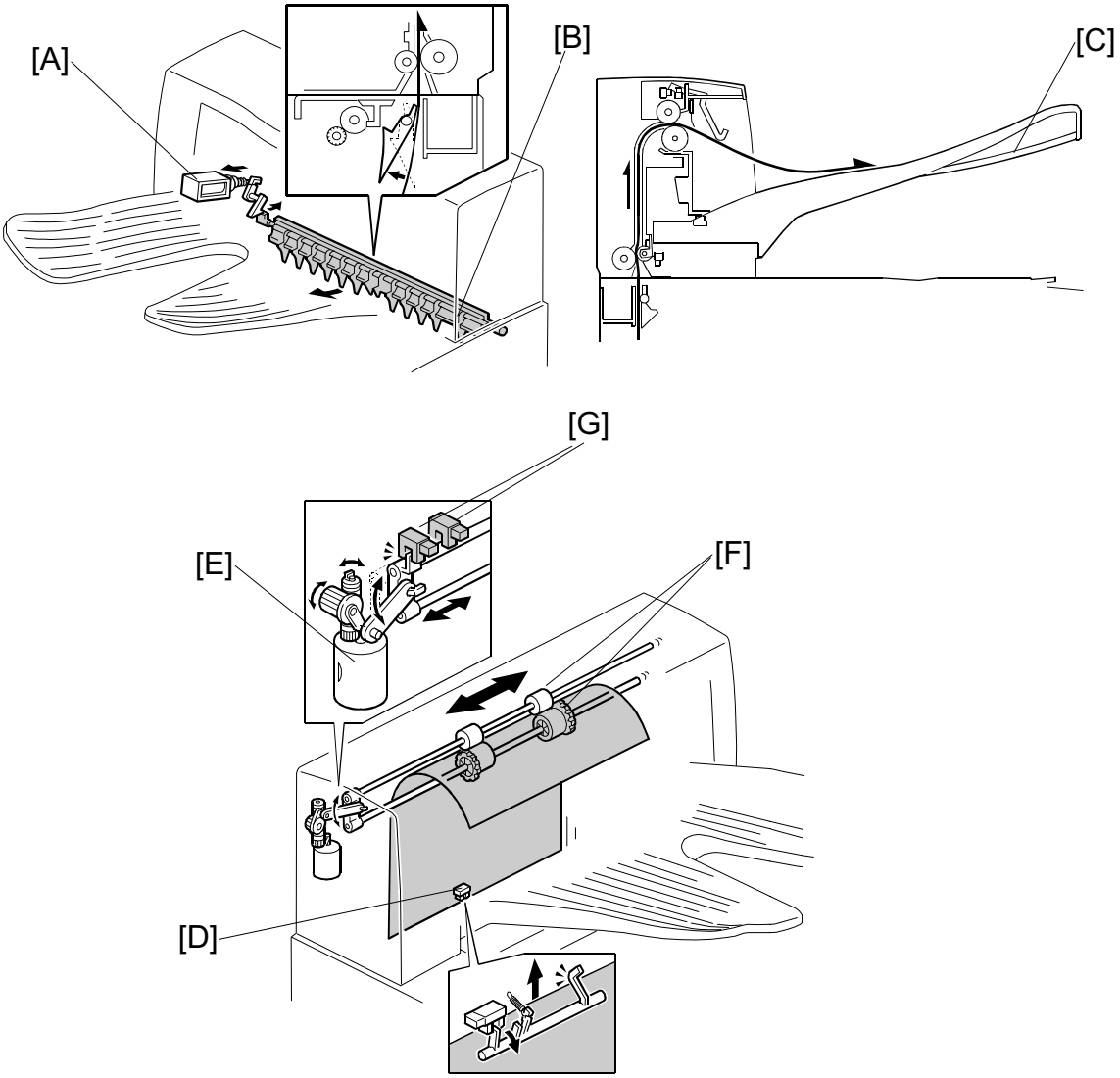


1. Shift motor
2. Shift tray board
3. Main motor
4. Junction gate solenoid
5. Left shift sensor
6. Right shift sensor
7. Cover sensor
8. Paper overflow sensor
9. Shift timing sensor
10. Tray paper sensor

CÓPIA NÃO CONTROLADA

2.2 DETAILED SECTION DESCRIPTIONS

2.2.1 BASIC OPERATION



- The solenoid [A] opens the junction gates [B] to direct the paper to the tray.

2.2.2 SORT MODE OPERATION

- When the trailing edge of each page passes the shift timing sensor [D], the shift motor [E] shifts the exit rollers [F] across. When the left or right shift sensor [G] detects the rollers, the motor stops, then returns the rollers to the center.
- Each page of the first set is shifted to one side, then each page of the next set is shifted to the other side. The rollers move back to the central position after shifting each page.

CÓPIA NÃO CONTROLADA

SwapBox™ and SwapFTL™ Installation Manual

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

CÓPIA NÃO CONTROLADA

1 INTRODUCTION

1.1 PRECAUTIONS

1.1.1 SWAPBOX AND SOFTWARE

If you purchase SwapBox from an authorized SCM Microsystems dealer, do not use the software enclosed with the SwapBox. You need to purchase the required software and license additionally from Ricoh.
The software part number is: **A2309353**

1.1.2 SOFTWARE LICENSE AGREEMENT

Before you use the software, you must agree to the SCM software license agreement that is enclosed in either the SwapBox or the software.
Users must be responsible for the agreement with SCM Microsystems Inc. Ricoh Co., Ltd. is not responsible for any legal problems caused by user's actions contrary to the agreement.

1.2 SYSTEM REQUIREMENTS

- An IBM PC-AT compatible computer with ISA Plug & Play BIOS
- One empty ISA bus slot (SBI-C2P and SBI-D2P)
- One empty 3.5" drive bay (SBI-D2P)
- Microsoft ® Windows ® 95 operating system 4.00.950a or later version installed (Refer to section 1.4 for more details.)
- At least 2MB of free disk space on the system partition (the partition where Windows 95 is installed) for SwapFTL software installation

1.3 ITEMS TO PREPARE BEFORE INSTALLATION

- Computer hardware user's manual
- Windows 95 installation disks or CD-ROM
- Windows 95 service pack (Refer to section 1.4 for more details.)
- SCM SwapBox SBI-C2P or SBI-D2P

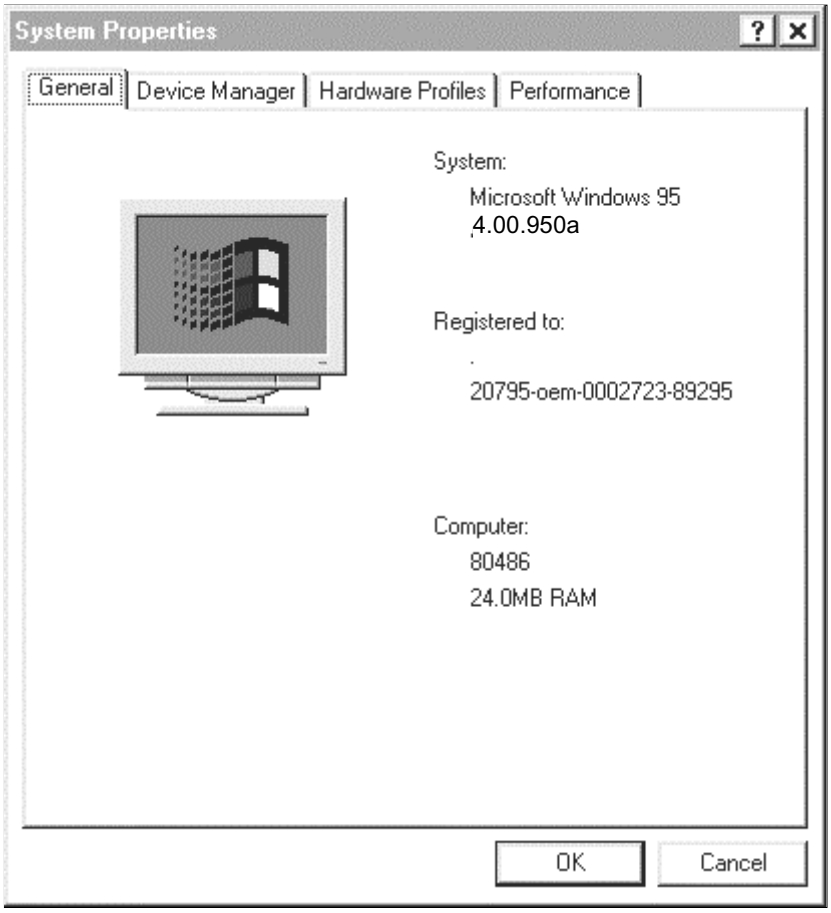
SCM/RCH SwapFTL + SwapUTI (rev. 2.01 or later) software diskette, and a software license

1.4 WINDOWS 95 VERSION CONFIRMATION

Windows 95 has several different versions as shown in the following table.

Version	Description	Remarks
4.00.950	First version	**Not suitable for SwapBox and SwapFTL installation.**
4.00.950a	First version (4.00.950) plus service pack 1	Install service pack 1 (SP1) into Windows 95 version 4.00.950. SP1 is available from Microsoft's web site.
4.00.950B	So called "OSR2 (OEM Service Release 2)"	Only computers with Windows 95 pre-installed have had this version since 1997.
4.00.950C	So called "OSR2.5 (OEM Service Release 2.5)"	Only computers with Windows 95 pre-installed have had this version since 1998.

Check the Windows 95 version first, just by clicking the "System" icon in the Windows Control Panel. If you see 4.00.950 in the box shown below, though the example version is 4.00.950a, install "Service Pack 1" into the current Windows operating system. Refer to the next page for how to get "Service Pack 1".



If the version is 4.00.950B or 4.00.950C, install SwapBox and SwapFTL without updating Windows.

CÓPIA NÃO CONTROLADA

"Service Pack 1" is available from the Microsoft web site.
For the detailed information, refer to the following Internet address.
http://www.microsoft.com/windows95/info/service-packs.htm

The service pack file can be downloaded from the following Internet location.
Choose the one that is suitable for your Windows version.

Language	Internet Location
US English	http://www.microsoft.com/windows95/info/service-packs.htm
Chinese (Simplified)	Not available.
Chinese (Traditional)	http://www.microsoft.com/windows/software/localize/tw-eu.htm
Czech	http://www.microsoft.com/windows/software/localize/cz-eu.htm
Danish	http://www.microsoft.com/windows/software/localize/dan-eu.htm
Dutch	http://www.microsoft.com/windows/software/localize/dut-eu.htm
Finnish	http://www.microsoft.com/windows/software/localize/fin-eu.htm
German	http://www.microsoft.com/windows/software/localize/frn-eu.htm
Greek	http://www.microsoft.com/windows/software/localize/ger-eu.htm
Hungarian	http://www.microsoft.com/windows/software/localize/grk-eu.htm
Italian	http://www.microsoft.com/windows/software/localize/itn-eu.htm
Japanese (PCAT)	http://www.microsoft.com/windows/software/localize/jpcat-eu.htm
Korean	http://www.microsoft.com/windows/software/localize/kr-eu.htm
Norwegian	http://www.microsoft.com/windows/software/localize/nor-eu.htm
Pan-European	http://www.microsoft.com/windows/software/localize/pan-eu.htm
Polish	http://www.microsoft.com/windows/software/localize/pl-eu.htm
Portuguese (Brazilian)	http://www.microsoft.com/windows/software/localize/brz-eu.htm
Portuguese (Iberian)	http://www.microsoft.com/windows/software/localize/pt-eu.htm
Russian	http://www.microsoft.com/windows/software/localize/ru-eu.htm
Slovenian	http://www.microsoft.com/windows/software/localize/slv-eu.htm
Spanish	http://www.microsoft.com/windows/software/localize/spa-eu.htm
Swedish	http://www.microsoft.com/windows/software/localize/swe-eu.htm
Thai	http://www.microsoft.com/windows/software/localize/thai2.htm
Turkish	http://www.microsoft.com/windows/software/localize/trk-eu.htm

CÓPIA NÃO CONTROLADA

2 SWAPBOX INSTALLATION

2.1 HARDWARE INSTALLATION

CAUTION: 1) Before installing the SwapBox in a computer, turn off the computer and disconnect the power cable.
2) This manual does not explain how to install an ISA board in your computer. Refer to your computer's users manual for how to do it.

Install the SwapBox as explained in Chapter 1 to 3 of the SwapBox Manual that is enclosed in the SwapBox package.
Then go on to the next section below for the driver installation.

2.2 DRIVER INSTALLATION

CAUTION: 1) Do not use the software disks that are enclosed with the SwapBox.
2) Ensure that you have Windows 95 - 4.00.950a or a later version installed in your computer. (Refer to section 1.4 for more details.)

1. Turn on the computer. "SCM SwapBox" may appear during boot-up.
2. When Windows 95 starts, it finds the SwapBox automatically and installs the necessary driver files from the Windows installation diskette(s) or CD-ROM.
3. After Windows starts, choose "PCCard" from the Control Panel.
   - If PCCard Properties is displayed, driver installation has finished. You can go on to the next section.
   - If PCCard Wizard is displayed, go on to the next step.
4. In the PCCard Wizard, choose all the default settings to finish the wizard, then reboot the computer.
5. After Windows 95 has restarted, choose "System" from the Control Panel.
6. Choose "Device Manager" and confirm that "SCM SwapBox Family Plug and Play PCMCIA Controller" is listed in the PCMCIA socket category.
7. Double-click "SCM SwapBox Family Plug and Play PCMCIA Controller" and confirm that the SwapBox is working properly.

3 SOFTWARE (SWAPFTL) INSTALLATION

CAUTION: 1) If you purchased SwapBox from an authorized SCM dealer, do not use the software diskettes that are enclosed in the SwapBox package.
2) Use the software diskette which is labeled “SwapBox Software/ RCH SwapFTL + SwapUTI”.
3) A software license is required to **install** a software package on a computer.
4) The SwapFTL software may not work with some PC Card (PCMCIA), CardBus, or ZV port controllers installed in notebook computers.

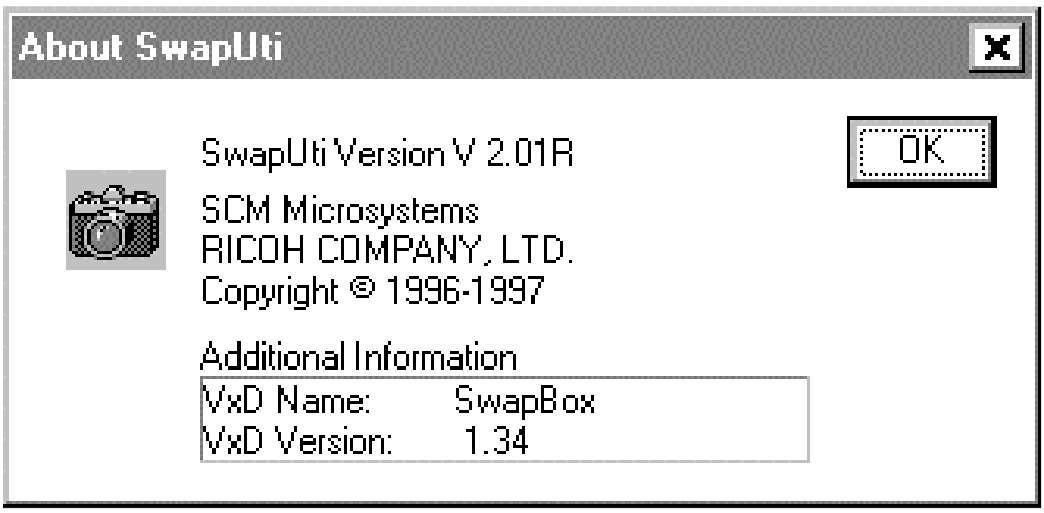
3.1 SWAPFTL SOFTWARE INSTALLATION

1. Ensure that the SwapBox has been installed and configured under the Windows 95 environment.
2. Insert the software diskette in the floppy disk drive.
3. Choose “Run” from the Start menu.
4. Type “A:\setup” and click OK.
5. Follow the instructions on the display.
6. Reboot the computer after installation has finished.

3.2 VERIFICATION

3.2.1 SOFTWARE VERSION

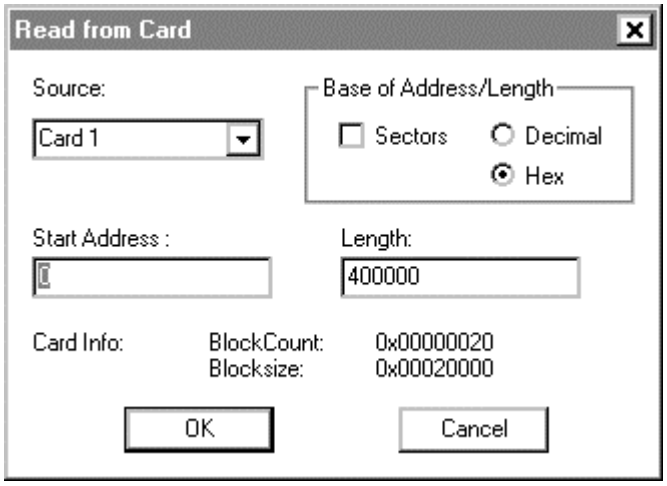
1. Choose “SwapFTL Binary Utility” from the “SCMSwapFTL” program group.
2. After the utility starts, choose [Help] – [About SwapUti..].
3. Confirm that the version information is as follows:



3.2.2 FLASH MEMORY CARD AUTOMATIC DETECTION

1. Insert the 4MB flash memory card supplied from Ricoh into a card slot.
2. Windows 95 automatically detects the card, if this is the first time a flash card has been used, Windows 95 installs the necessary drivers, and the “Found new hardware” dialog box should appear automatically.
3. Wait about 30 s, then choose “SwapFTL Binary Utility” from the “SCMSwapFTL” program group.

4. After the utility software starts, choose [Image] – [Read].
   If “Failed to open PCCard” appears, see Troubleshooting.



5. Click OK to read the card.
   If this works successfully, a new file is created as a temporary file, and this can be stored on the computer.

4 TROUBLESHOOTING

4.1 SWAPBOX RESOURCE CONFLICT

An ISA device must not share resources (IRQ, I/O address, and memory address) with another device.
ISA plug and play BIOS automatically assigns necessary resources to ISA boards. However, this could cause a problem if an ISA board requires specific resources. The SwapBox requires a specific memory address range to activate card services. So, if another ISA device or PCI device occupies this memory address range, the SwapBox and SwapFTL will not work.

4.1.1 IRQ AND I/O ADDRESS

To identify whether an IRQ or I/O address has a conflict with another device, check the SwapBox properties in the Windows device manager. If you find a conflict, follow the instructions given by Windows Help.

4.1.2 MEMORY ADDRESS

The SwapBox and card services require a memory Window between 0xC8000 to 0xD3FFF.
The SwapBox properties do not tell you if the memory address is in conflict with others. To identify whether the memory address is in conflict with another device, do the following:

1. Choose “Computer” in the Windows device manager, and click “Properties”.
2. Choose “Memory” in the “View resources” tab.
3. Check if any other device is using the address range from **0xC8000** to **0xD3FFF**. If it is a PCI device, you need to adjust the plug and play BIOS settings. If it is an ISA device, you need to remove the device from the system.

Conflict with a PCI device

1. Shut down Windows and reboot the computer.
2. Enter BIOS setup during system boot-up.
   NOTE: How to enter BIOS setup and BIOS setup options depends on your system.
3. Find the ISA plug and play settings in the BIOS setup.
4. Adjust the settings so that the BIOS does not allocate the SwapBox memory range to PCI devices.

Example: Award BIOS

1. Press the “DEL” key during boot-up to gain access to BIOS setup.
2. Choose “PNP AND PCI SETUP” from the main menu.

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3 Change the “ISA MEM BLOCK BASE” setting as follows:
   - ISA MEM BLOCK BASE: No/ICU → **D000**
   - ISA MEM BLOCK SIZE: **8k**

4 Press “Esc” to exit “PNP AND PCI SETUP”.

5 Choose “SAVE & EXIT SETUP”.

Conflict with a plug and play ISA device

1. Shut down the computer.
2. Remove the ISA device that is in conflict with the SwapBox.
3. Restart the computer and see if the SwapBox and the SwapFTL work under the Windows environment.

Conflict with a legacy ISA device

Either remove the ISA device that is in conflict with the SwapBox to change its jumper settings, or run the setup utility of the device to change the setting.

4.2 “FAILED TO OPEN PCCARD” ERRORS

4.2.1 TIMELAG TO LOADING DRIVER

Windows requires a certain time, which depends on system performance, to enable card services for a flash memory card after inserting it in a PC card socket.
If you try to read, erase, or write to the card before the card service is ready, you receive a “Failed to open PCCard” error.
Wait for about 30 s, then try again.

4.2.2 PCCARD NOT CONFIGURED

If the PCCard icon in the Windows Control Panel is not configured, you receive a “Failed to open PCCard” error when you try to access the card.
Configure the PCCard icon using Control Panel as explained in the driver installation procedure.

4.2.3 RESOURCE CONFLICT

If you receive a “Failed to open PCCard” error even if the SwapBox looks correctly configured in the device manager, a memory address conflict is causing the error.
Refer to section 4.1.2 to solve the problem.

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4.3 ”INVALID DYNAMIC LINK CALL FROM SWAPENUM…” ERROR

A blue screen error with a message *“Invalid dynamic link call from SwapEnum to device xxxx service x”* may happen, if SwapFTL software was installed before SwapBox had been activated.
Once this happens, follow the procedure below.

1. Uninstall SwapFTL (choose “SwapFTL Uninstall” from “SCM SwapFTL” program menu).
2. Reboot the computer.
3. After Windows has restarted, double-click “System” icon in the Control Panel.
4. Choose “Device Manager” tab and double-click “SCM SwapBox” in the “PCMCIA sockets” category.
5. If the device was not activated, activate it.
6. Reboot the computer.
7. After Windows has restarted, re-install SwapFTL.

4.4 SWAPFTL PROBLEM WITH NOTEBOOK COMPUTERS

4.4.1 WINDOWS AND PC CARD DRIVER VERSION

Before installing the SwapFTL software into a notebook computer, ensure the following.

- Windows 95 OSR2 is installed or Service Pack 1 is installed.
  For how to identify the version of Windows 95, refer to section 1.4 for details.
- The latest PC Card driver is installed.
  Contact your computer manufacturer or PC Card controller vender.

4.4.2 SYSTEM SUMMERY

If you still have problems after updating Windows and the drivers, send your computer’s system summary to the support database.
To prepare the system summary as a PostScript file, do the following.

1. Install a PostScript printer (e.g., HP LaserJet 4 PS).
2. Double-click the “System” icon in the Control Panel.
3. Choose the “Device manager” tab, and select “Computer” in the device map.
4. Click the “Print” button.
5. Choose the PostScript printer using the “Setup” button, choose “All devices and system summary” as the report type, and check the “Print to file” box.
6. Click OK to make a PostScript print file.

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4.5 COMPLETE UNINSTALL

If the SwapBox and the SwapFTL software do not work due to unsuccessful configuration, the following process helps you to restart Windows plug and play from the beginning.
This procedure uninstalls all the software and drivers that were installed for the SwapBox, as well as deleting the Windows registry settings.

1. Uninstall the SCM SwapFTL programs.
   Choose “SwapFTL uninstall” from the Start menu.
2. Delete the following files from the \Windows\System directory.
   - SOCKETSV.VXD
   - FLS2MTD.VXD
   - FLS1MTD.VXD
   - SRAMMTD.VXD
   - CARDDRV.EXE
   - CSMAPPER.SYS
   - PCCARD.VXD
3. Delete “SCM SwapBox Family Plug and Play PCMCIA Controller” from the Windows device manager.
   (Choose ‘System” from the Control panel to access the device manager.)
4. Shutdown and restart Windows.
   Windows starts the plug & play process again to install the SwapBox.

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SwapFTL™ Binary Utility Operation Manual

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SwapBox and SwapFTL are trademarks of SCM Microsystems Inc.

1. OVERVIEW

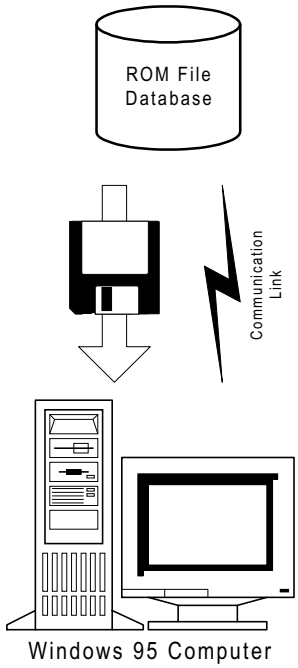
This software allows a flash memory card to be used as an intermediate medium between a flash ROM (or RAM) on the machine and a Windows 95 based computer.

The basic procedure is as follows:

1. You receive ROM files from a database either via network or via physical medium, and save them onto your computer's local hard disk.

   NOTE: Your computer works as a flash memory card programmer after you install SwapBox and SwapFTL software (this software).

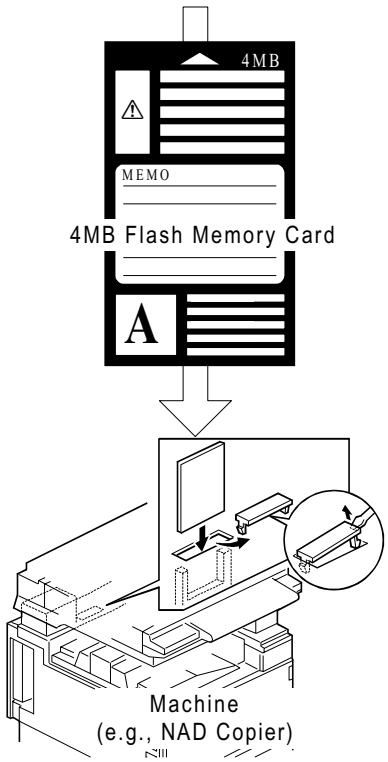
2. You program the ROM file to a flash memory card using this software.



3. You carry the programmed card to a machine site and download the ROM data from the card to the machine's internal flash ROM.

   NOTE: The 4MB flash memory card that is customized for this application is available from SPC.
   You cannot use other types of flash memory card.

4. After downloading ROM data to one machine, you can use the same card with another machine of the same type.



SwapBox™ And SwapFTL™

2. OPERATION

2.1. PROGRAMMING A FLASH MEMORY CARD

2.1.1 GETTING A SOURCE FILE

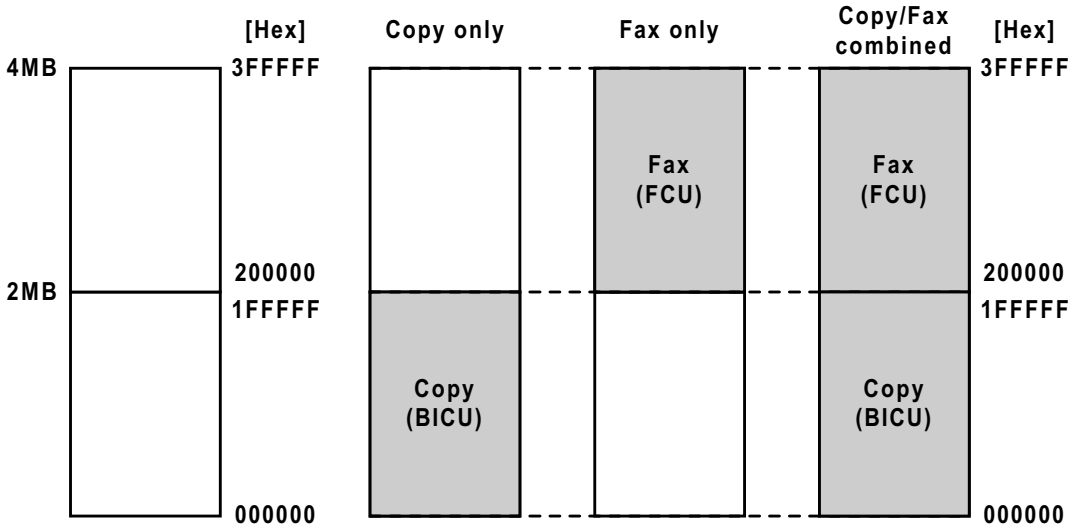
You can (or will be able to) obtain the source firmware file(s) in one of the following ways.

- Notes mail or through a Notes database
- Internet-mail
- BBS
- Floppy disk
- Flash memory card (you need to save the data on the card as a file on a PC before using the data.)
- Others (as yet unspecified)

2.1.2 PROGRAMMING A CARD WITH THE SOURCE

A230/A231/A232 Copy and Fax Main Firmware

You can program copy and fax firmware together onto one 4MB flash memory card, as shown below.



Start Address (Hex)	0	200000
Length (Hex)	200000	200000
Size (kB)	2,000 (2MB)	2,000 (2MB)

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A230/A231/A232 Fax Modem Firmware and Fax SRAM Backup

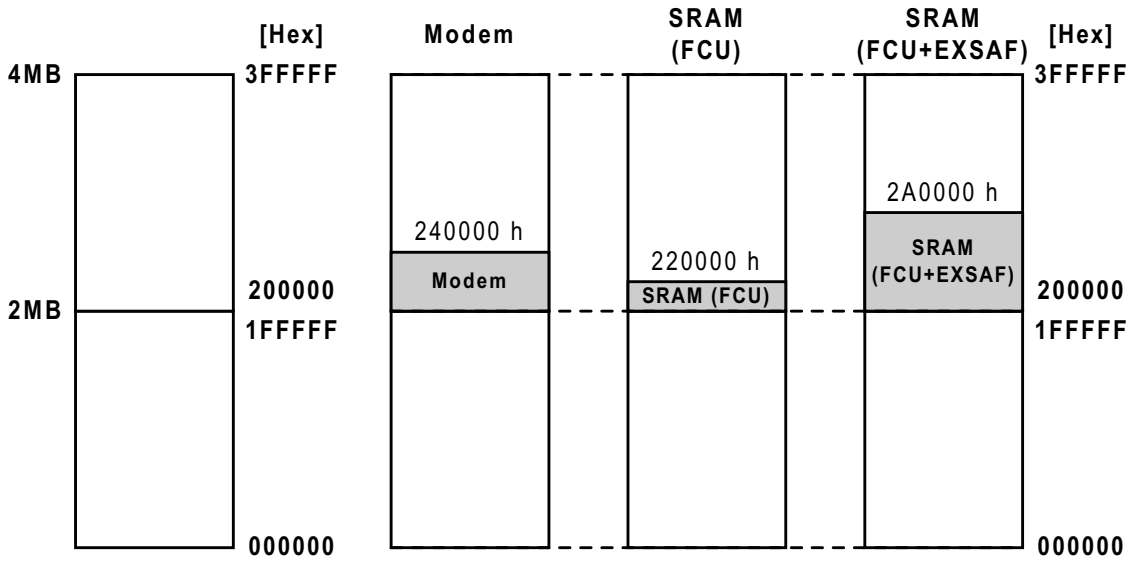
Modem

Program modem firmware using the address and length settings as shown below. You cannot program other data on the card once the modem firmware has been programmed.

SRAM

Using Fax SP mode, you can make a backup of SRAM data onto the 4MB flash memory card. This will help you set up multiple machines with fax options with the same settings, or will help you restore user data if the SRAM data has been erased accidentally.

To save the SRAM backup data from a fax unit on a 4MB flash memory card as a file, or to program a backup file from a PC onto a 4MB flash memory card, use the address and length settings as shown below.



Start Address (Hex)	200000	200000	200000
Length (Hex)	40000	20000	A0000
Size (kB)	256	128	128 + 512

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2.2 DOWNLOADING TO A MACHINE

Refer to the machine's service manual for how to download its firmware to the flash ROM inside it.

2.3 SAVING DATA TO A FILE

Some machines can upload an internal flash ROM image to a flash memory card. To save the image on the flash memory card as a computer file, read the card with a specific address range setting that was mentioned in section 2.1.2, and save the read data as a file.

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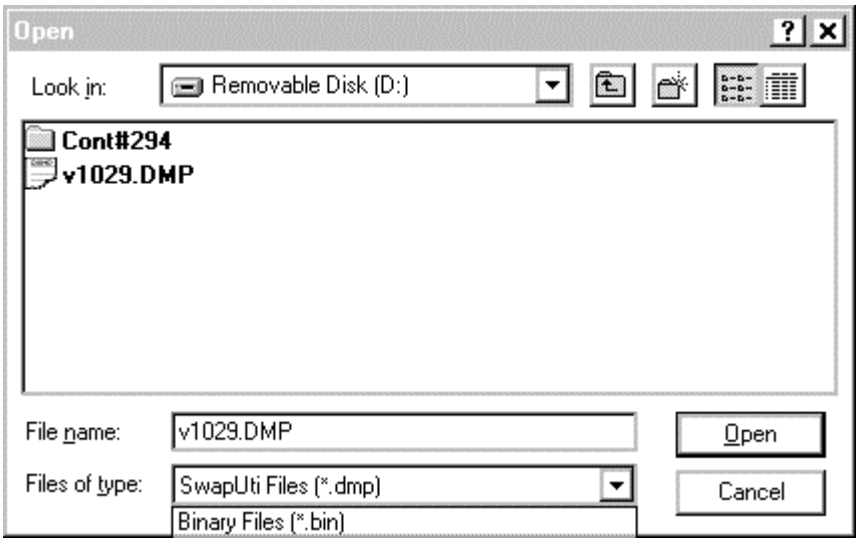
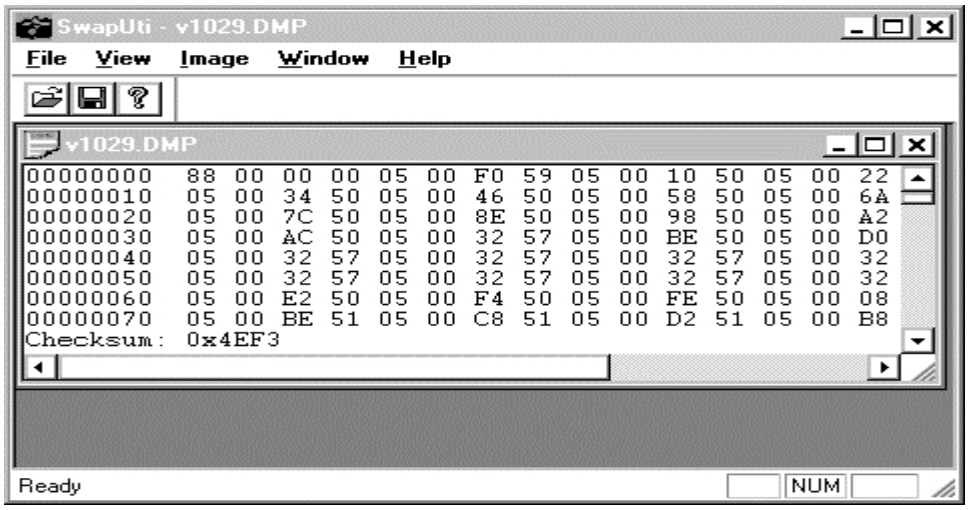
3. FUNCTIONS

3.1 FILE MENU

3.1.1 [FILE] – [OPEN]



This opens a binary file.
Use “Binary Files (*.bin)” or “SwapUti Files (*.dmp). Do not use the others.
The default setting is “Binary Files (*.bin).



An 8-bit checksum is displayed at the lower left corner of the opened file.

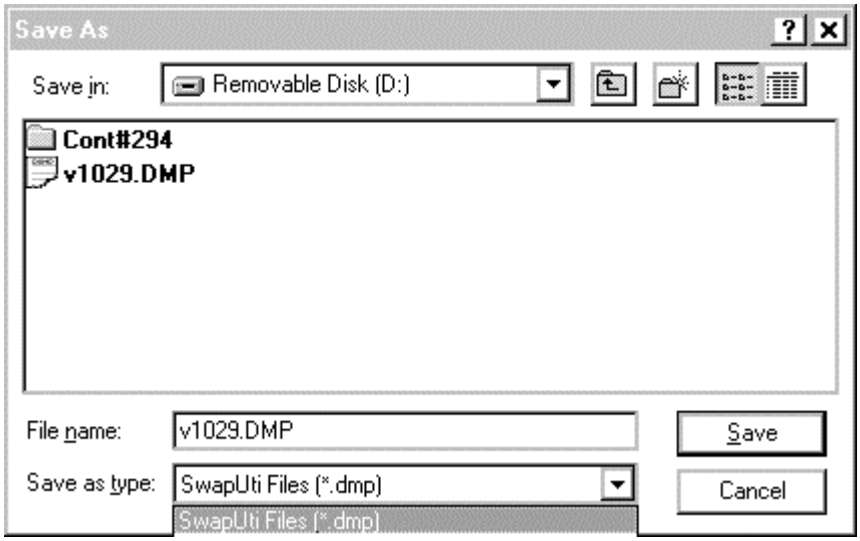
3.1.2 [FILE] – [CLOSE]

This closes an active file that has been opened.

3.1.3 [FILE] – [SAVE]

This saves an active file with the same name.

3.1.4 [FILE] – [SAVE AS]



This saves an active file with a different name from the original.

3.2 VIEW MENU

3.2.1 [VIEW] – [TOOLBAR]

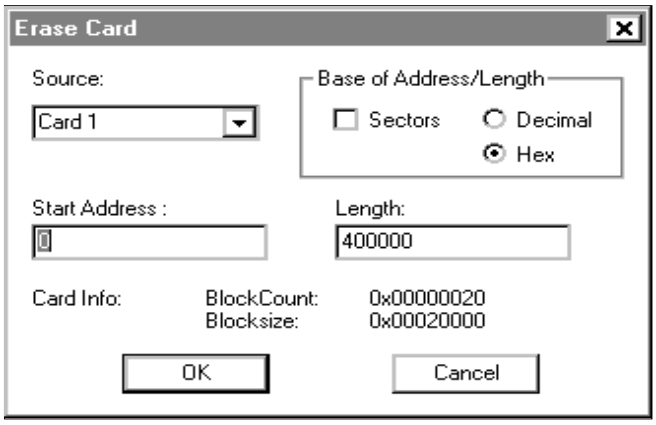
This switches on the toolbar display.

3.2.2 [VIEW] – [STATUS BAR]

This switches on the status bar display.

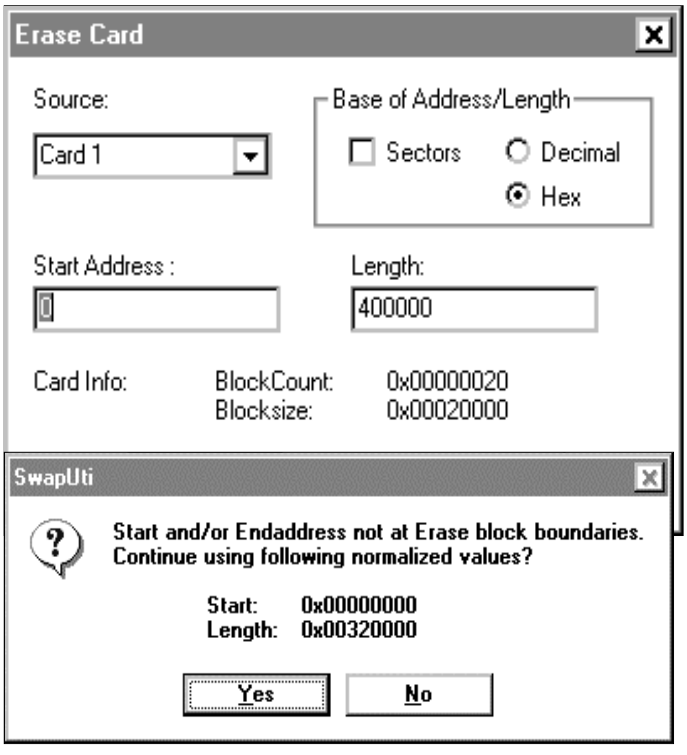
3.3 IMAGE MENU

3.3.1 [Image] – [Erase]



Field	Description
Source	Card slot number that has a flash memory card currently installed.
Start Address	A “0 (zero)” appears at default. To erase the whole card, do not change the setting
Length	Hexadecimal length of the card appears at default. To erase the whole card, do not change the setting
Base of Address/ Length	Do not change the settings. The default setting is “Hex”.

NOTE: If the specified start address and length do not coincide with block boundaries on the flash memory card, the message below appears.



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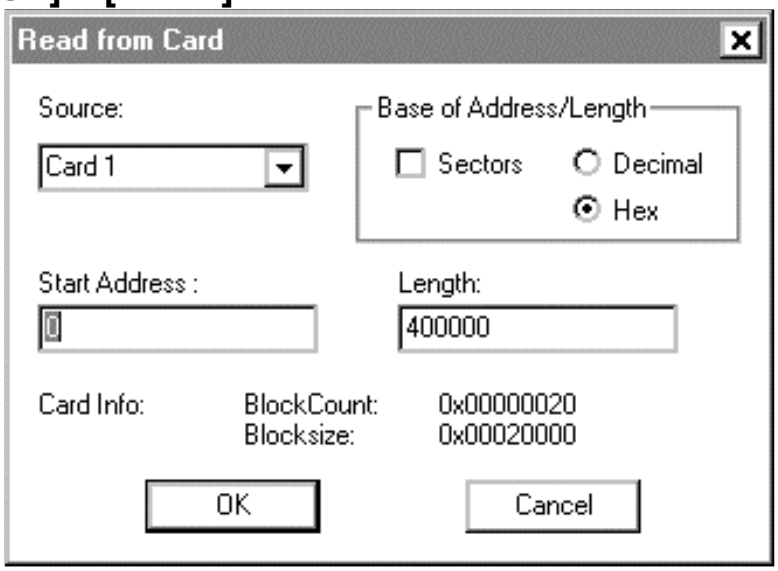
3.3.2 [IMAGE] – [READ]



Field	Description
Source	Card slot number that has a flash memory card currently installed.
Start Address	A “0 (zero)” appears at default. Change this setting if necessary.
Length	Hexadecimal length of the card appears at default. Change this setting if necessary.
Base of Address/ Length	Do not change the settings. The default setting is “Hex”.

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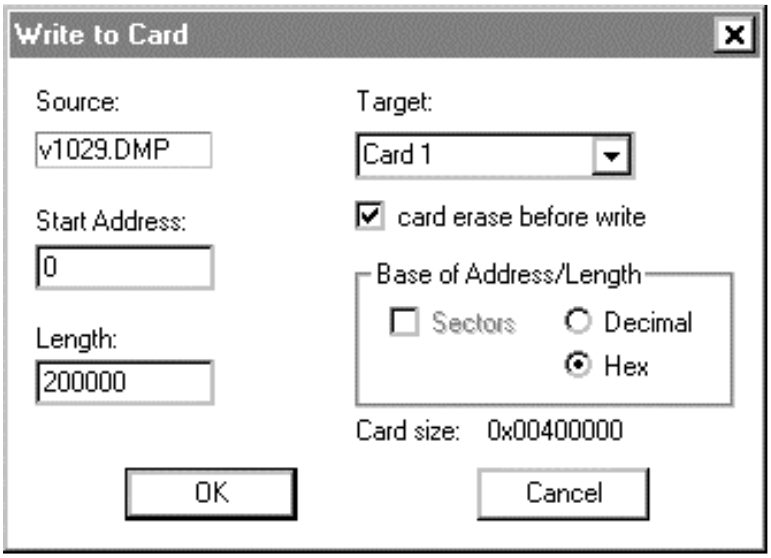
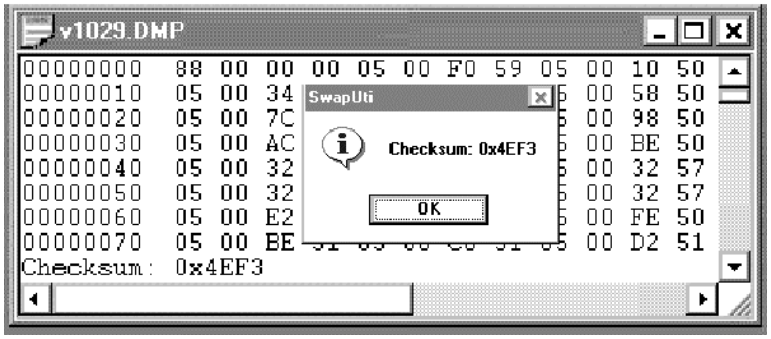
3.3.3 [IMAGE] – [WRITE]

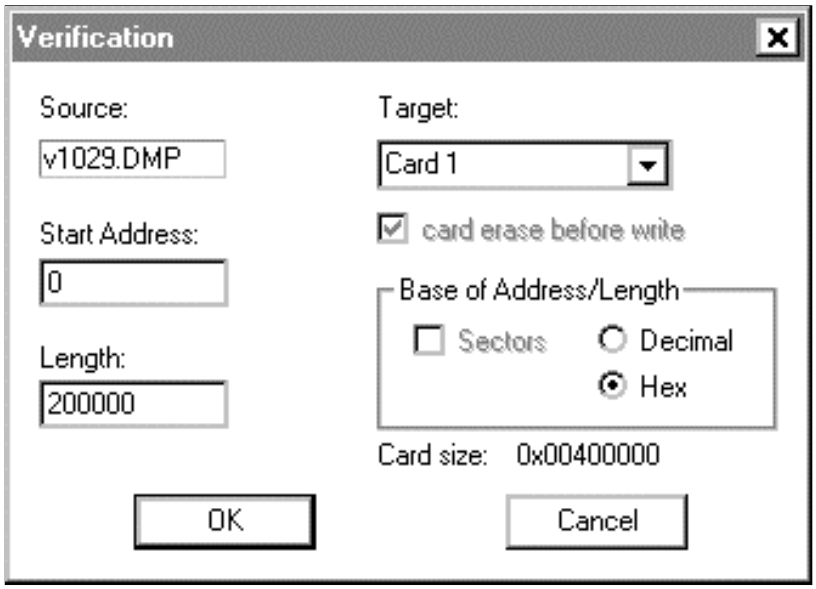


Field	Description
Source	Source file name that is currently active in the application.
Target	Card slot number that has a flash memory card currently installed.
Card erase before write	If this is checked, the application erases the whole card before writing data from the source file. The default setting is checked (= erase).
Start Address	A “0 (zero)” appears at default. Change this setting if necessary.
Length	Hexadecimal length of the source file appears at default. Do not change the setting.
Base of Address/ Length	Do not change the settings. The default setting is “Hex”.



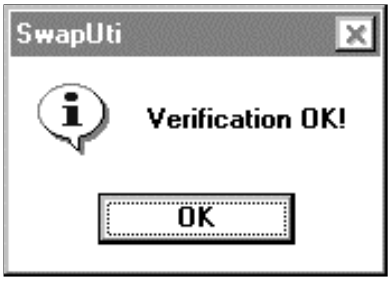
After writing the data to a flash memory card, an 8-bit checksum ① pops up, so that you can compare it with the checksum ② of the source file.

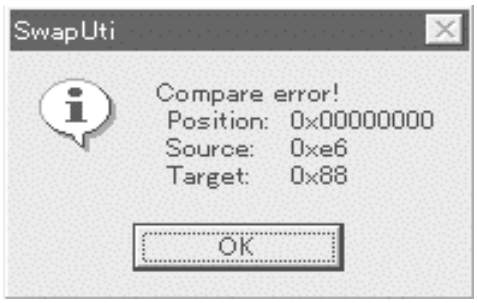
3.3.4 [Image] – [Verification]



Field	Description
Source	Source file name that is currently active in the application.
Target	Card slot number that has a flash memory card currently installed.
Start Address	A “0 (zero)” appears at default. Change this setting if necessary.
Length	Hexadecimal length of the source file appears at default. Do not change the setting.
Base of Address/ Length	Do not change the settings. The default setting is “Hex”.

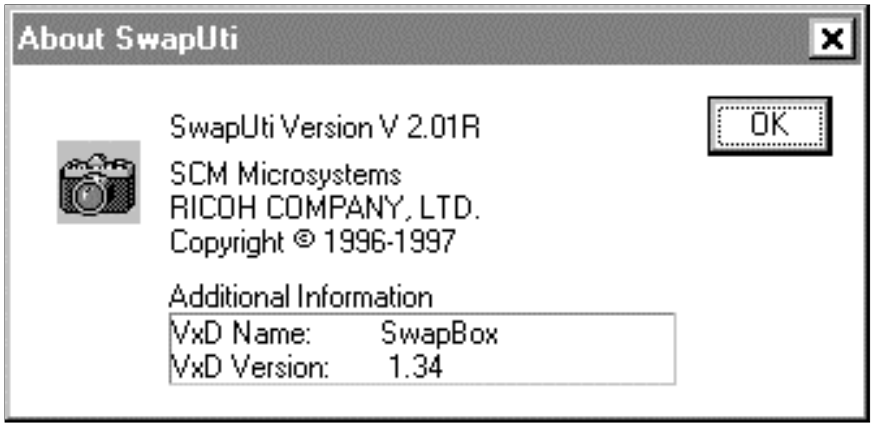
If verification was successful, a ‘Verification OK!” message pops up.
If verification was not successful, a “Compare error !” message pops up with the source and target addresses.





3.4 HELP MENU

3.4.1 [HELP] – [ABOUT SWAPUTI…]



CÓPIA NÃO CONTROLADA

G073/G074
SERVICE MANUAL

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⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the printer power cord is unplugged.
2. The wall outlet should be near the printer and easily accessible.
3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

The printer and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

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SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:

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INSTALLATION

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1. INSTALLATION

Please refer to the base model (G056/G058) service manual for information on installation requirements.

Please refer to the Setup Guide for machine installation procedures.

1.1 OPTIONAL UNIT INSTALLATION

The following options are available for this machine. Refer to the Setup Guide for how to install these options.

- Paper Tray Unit
- 4-bin Mailbox
- 1-bin Shift Tray
- Duplex Unit
- Envelope Feeder
- NIB (G074 only) - the NIB is a standard component for the G073
- Hard disk
- IEEE1394
- 64-MB DIMM
- Wireless LAN (New option for this model)

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PREVENTIVE MAINTENANCE

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2. PREVENTIVE MAINTENANCE

2.1 USER/SERVICE MAINTENANCE

All PM items are the same as the base model (G056/G058). Please refer to the base model (G056/G058) service manual for user/service maintenance.

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REPLACEMENT AND ADJUSTMENT

CÓPIA NÃO CONTROLADA

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CÓPIA NÃO CONTROLADA

3. REPLACEMENT AND ADJUSTMENT

All replacement and adjustment items are the same as the base model (G056/G058), except for the item explained below. Please refer to the base model (G056/G058) service manual for details about replacement and adjustment.

3.1 DIFFERENCES FROM THE MODEL G056/G058

The following item has been changed from the model G056/G058.

Please note that the position of the thermistor attached to the laser unit has been changed.

NOTE: The thermistor is included in the laser unit.

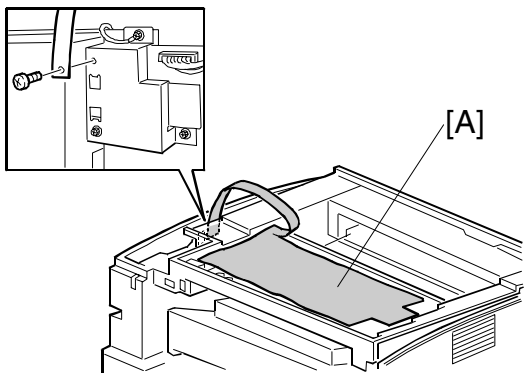
Removing the Laser Unit

Refer to the model G056/G058 manual for removal steps for the following items.

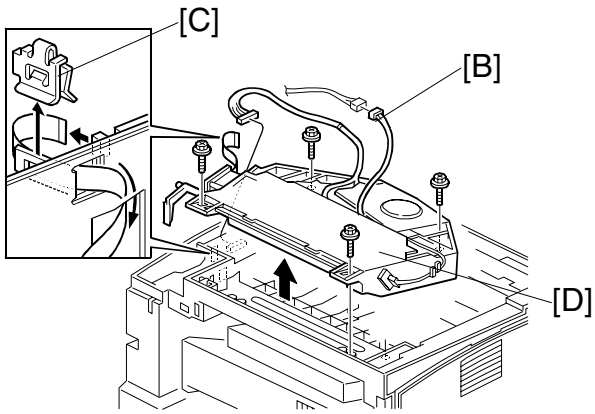
Operation panel (☛ 3.2 Exterior Covers)

Upper cover (☛ 3.2 Exterior Covers)

Left cover (☛ 3.2 Exterior Covers)



[A]: **230V machine only:** Sheet (☞ x1)
[B]: Thermistor (🖑 x1)
[C]: Clip
[D]: Laser unit (☞ x4, 1 flat cable, 🖑 x2)



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TROUBLESHOOTING

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4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are two levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative. The copier cannot be operated at all.	**Enter engine service mode (Fusing Error Clear) and press "Enter."**
B	The SC can be reset by turning the main power switch off and on.	Turn the main power switch off and on.

The new SC codes are shaded.

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4.1.2 CONTROLLER SC CODE DESCRIPTIONS

The following table describes the controller error codes. These codes are displayed at power-on, or after the power-on self diagnostic test, if an error occurs.

Important: Always try turning the main switch off and on and check if the problem persists.

SC	Level	Symptom	Possible Cause/Required Action
640	B	Controller to engine communication error.	
		Checksum error detected between the controller and the engine board.	• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent. 3. Replace the controller board if the error is frequent.
641	B	Controller to engine communication error.	
		The controller receives no response from the engine board.	• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent. 3. Replace the controller board if the error is frequent.
670	B	Engine start-up error	
		The ready signal from the engine board is not detected.	• Defective engine board. Replace the engine board.
671	B	Engine board mismatch error	
		Engine board and controller mismatch detected.	• Wrong engine board installed. • Wrong controller board installed. Check the type of engine board and controller board.
800	B	Video data error	
			• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent.
818	B	System timeout error	
		System program timeout error detected.	• Defective controller Replace the controller if it occurs frequently.
⇒ 819	B	Kernel abnormal end error	
		A HDD error or a software error has occurred, terminating the SCS process, gwinit process, and finally the kernel program. A system process has exhausted the RAM.	• HDD Error Software application error RAM shortage.

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SC	Level	Symptom	Possible Cause/Required Action
820	B	Self-diagnostic error - CPU	
		CPU error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
821	B	Self-diagnostic error - ASIC/CPU	
		ASIC and CPU timer error detected during self-diagnostic.	• Defective controller 1. Replace the controller if the error is frequent.
822	B	Self-diagnostic error - HDD	
		HDD timeout error detected during self-diagnostic.	• Poor HDD connection • Defective HDD 1. Check the HDD connection. 2. Replace the HDD.
823	B	Self-diagnostic error - NIB	
		NIB error detected during self-diagnostic.	G073 model: Defective controller Replace the controller. G074 model: • Poor NIB connection • Defective NIB or controller 1. Check the connection between the NIB and the controller. 2. Replace the NIB.
824	B	Self-diagnostic error - NVRAM	
		NVRAM error detected during self-diagnostic.	• Poor NVRAM connection 1. Check if the NVRAM is properly installed. 2. Replace the NVRAM
827	B	Self-diagnostic error - standard SDRAM	
		Standard SDRAM (memory) error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
828	B	Self-diagnostic error - Flash ROM	
		Flash ROM error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
829	B	Self-diagnostic error - Optional RAM	
		Memory RAM error detected during self-diagnostic.	• Poor connection of the optional memory • Defective memory RAM 1. Check the connection of the optional memory. 2. Replace the memory DIMM.
835	B	Self-diagnostic error - Parallel interface	
		Parallel interface error detected during self-diagnostic.	• Defective controller Replace the controller.
836	B	Self-diagnostic error - Font ROM	
		Not used for this model.	
837	B	Self-diagnostic error - Optional font ROM	
		Not used for this model.	

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SC	Level	Symptom	Possible Cause/Required Action
838	B	Self-diagnostic error - Clock generator	
		Controller clock generator error detected during self-diagnostic.	• Defective controller Replace the controller.
850	B	NIB interface error	
		NIB interface error detected.	• Defective controller Replace the controller.
851	B	IEEE1394 interface error	
		IEEE1394 interface error detected.	• Defective controller Replace the controller.
853	B	IEEE802.11b error - card not detected (power-on)	
		Wireless LAN card not detected at power-on.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
854	B	IEEE802.11b error - card not detected (during operation)	
		Wireless LAN card not detected during operation.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
855	B	IEEE802.11b error	
		Wireless LAN card error detected.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
856	B	IEEE802.11b interface board error	
		Wireless LAN interface board error detected.	• Poor connection • Defective wireless LAN interface board 1. Check the wireless LAN interface board connection. 2. Replace the interface board.
857	B	USB I/F Error	
		USB interface error detected.	• Defective controller 1. Check the USB connections, make sure that they are securely connected. 2. Replace the controller board.
860	B	HDD start-up error	
		HDD initialization error detected.	• Defective HDD 1. Check the HDD connection. 2. Reformat the HDD. 3. Replace the HDD.

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SC	Level	Symptom	Possible Cause/Required Action
863	B	HDD data unable to read	
		Data stored in the HDD cannot be properly read.	• Defective HDD 1. Check the HDD connection. 2. Reformat the HDD. 3. Replace the HDD.
864	B	HDD data access error	
		HDD access error detected.	• Defective HDD Replace the HDD.
865	B	HDD access error	
		An error detected during HDD operation.	• Defective HDD Replace the HDD.
990	B	Unexpected software error	
		Unexpected software error detected.	• Defective controller Replace the controller if the error is frequent.
991	B	Unexpected software error	
		Unexpected software error detected, which does not affect operation of the machine.	The machine does not stop and the SC code is not displayed. The machine automatically recovers. However, the SC code is logged in the engine summary sheet (SMC).
⇒ 998	B	Application Start Error	
		After power on, the application does not start within 60s. (All applications neither start nor end normally.)	Software defective. An option required by the application (RAM, DIMM, board) is not installed
999	B	Software update error	
		Software updating failed.	Try downloading the controller firmware again.

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4.2 JAM LOCATIONS

The following codes are displayed on the SMC report to locate where the jam occurred in the machine.

For example, if the following is printed on the SMC report:

020 0003260

This means that the jam occurred during registration (paper did not reach the registration sensor) when the print counter was 3260.

Jam Code	Description
017	PFU (tray 2) paper feed sensor not turned on
018	PFU (tray 3) paper feed sensor not turned on
019	Registration sensor not turned on - bypass feed
020	Registration sensor not turned on - tray 1
021	Registration sensor not turned on – paper feed unit
022	Registration sensor not turned on - duplex
023	Registration sensor not turned off
024	Paper exit sensor not turned on
025	Paper exit sensor not turned off
033	Paper exit sensor not turned on - shift tray or mailbox
034	Paper exit sensor not turned off - shift tray or mailbox
035	Vertical transport sensor not turned on - mailbox
036	Vertical transport sensor not turned off - mailbox
049	Duplex entrance sensor not turned on
050	Duplex entrance sensor not turned off
051	Duplex inverter sensor not turned on
052	Duplex inverter sensor not turned off
053	Duplex exit sensor not turned on
054	Duplex exit sensor not turned off

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⇒4.3 FIRMWARE HISTORY

4.3.1 PRINTER ENGINE FIRMWARE MODIFICATION HISTORY

- Please check the http://tsc.ricohcorp.com website for current firmware downloads.
- Accessory firmware modification history is provided in the appropriate accessory section of the service manual.

G073/G074 PRINTER ENGINE FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
First Mass Production	G0765135**D**	First Mass Production	1.05
Corrects the following: ● The Main Scan Magnification Adjustment (SP Mode) did not function properly with the previous version.	G0765135**E**	July '02 Production	1.06

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4.3.2 PRINTER CONTROLLER FIRMWARE MODIFICATION HISTORY

G073/G074 PRINTER CONTROLLER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
First Mass Production	G0735900**B**	First Mass Production	1.01
Corrects the following: ● While downloading PS fonts to a machine with the HDD option installed, the correct PS serial number cannot be output.	G0735900**C**	Feb. '02 Production	1.02
Corrects the following: ● Program update error occurs when Verify mode in the firmware updating procedure is used. ● PM counter count-up method for Meter-charge mode is corrected. Change in Specification: Symbol sets PC-858, Latin 9 and Roman 9 have been added for EURO currency symbol.	G0735900**D**	March '02 Production	1.03
Corrects the following: ● SNMP vulnerability SNMP security vulnerabilities reported by CERT on Feb.12, 2002 have been confirmed and fixed through the PROTOS c06-snmpv1 test suite. -CERT: http://www.cert.org/advisories/CA-2002-03.html -PROTOS c06-snmpv1 test Suite: http://www.ee.oulu.fi/research/ouspg/protos/testing/c06/snmpv1/ New features added to User Mode (see 4.3.3 User Mode Tree): 1. Letterhead Mode On: The machine feeds all pages through the duplex unit so that the last page of an odd-paged job is printed onto the front side of the paper. Off (default setting): The last sheet of an odd-paged job is not fed through the duplex unit, therefore although the output time of this sheet is slightly faster, the last page is printed onto the rear side. 2. 802.11 Ad hoc mode (one type of Ad hoc mode used with wireless LAN) is supported from this version. 3. SSID (used for infrastructure mode with wireless LAN) can now also be programmed from User Mode. Previously, this was only possible using Web Status Monitor or telnet. 4. 128-bit WEP key (a wireless LAN security feature) is supported from this version. Previous versions supported only 64-bit WEP.	G0735900**E**	April '02 Production	1.04

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G073/G074 PRINTER CONTROLLER FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: PCL • Certain characters do not print • Modified so that some characters in symbol sets MS Text and Windows Baltic (19L) will appear exactly as they do with HP printers. • Modified so that PCLXL unsupported symbol (6M, 13J and 14J) sets will appear as "XL ERROR". Change in Specification: • If the machine has no HDD option, the PCL HDD Directory List (and font source) will not be printed on the PCL Configuration Page. • Supports the Status Read back function of the PCL5e. • If SSID is not entered, the message "SSID not entered" will display on the control panel for 3 seconds. • Supports PCLXL Euro symbol sets (PC-858, Latin 9, and Roman 9).	G0735900**F**	June '02 Production	1.05
Corrects the following: ● Polish wording error: Incorrect: Diskonaly Correct: Dostateczny ● German wording error: Incorrect: WEP Einstelling Correct: WEP Einstellung ● Changed the default setting of DHCP to ON. NOTE: There is no change when updating the firmware. This feature is for the factory default. ● Support the new device type of wireless LAN (IEEE802.11b).. ● HTTP and telnet protocols can be opened/closed using telnet. NOTE: After making the setting to disable HTTP, you cannot access the target device through web browser. If you want to change this settings, please use telnet to open HTTP. When telnet port is disabled, you have to clear the network settings (Memory Clear for NCS) to open the telnet port.	G0735900**G**	Oct. '02 Production	1.07

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G073/G074 PRINTER CONTROLLER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
The following has been corrected; **PCL** • Euro font does not print correctly. • Line Spacing Command, "lochEsc&l#D"loch, causes incorrect output • Same line widths when BitSW #3-3 is ON in CAD printing • Some True Type font might not be bolded. • Slow Printing from AutoCAD • When using bold font, lines may be printed on the blank of page. **PS3** • The printing speed of a PS job slows down after a PS3 job is reset. • PS print file is printed as text • Lines may be printed on the blank of page. • The printer controller locks-up when printing from Unix Acrobat. • Euro symbol is not printed when using PS driver.			

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SERVICE TABLES

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5. SP MODE TABLES

Refer to section 5.1.1 of the manual for the base model (G056/G058) for how to enable and disable service program mode.

5.1 PRINTER CONTROLLER SERVICE MODE

Service Table Key

Notation	What it means
[range / default / step]	Example: [-8.0 to +8.0 / 0 mm / 2 mm/step] The setting can be adjusted in the range ±8, reset to 0 after an NVRAM reset, and the value can be changed in 2 mm steps.
DFU	Denotes “Design or Factory Use”. Do not change this value.

5.1.1 SERVICE MODE MENU (“1. SERVICE MENU”)

Service Mode	Description	Function
Bit Switch	Bit switch settings	Adjusts bit switch settings.
Clear Setting	Initialize the system settings	Initializes settings in the “System” menu of the user mode.
Print Summary	Controller summary print	Prints the service summary sheet (a summary of all the controller settings).
Disp Version	Display controller	Displays the version of the controller.

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5.1.2 BIT SWITCH PROGRAMMING

Refer to section 5.2.2 of the service manual for the base model (G056/G058) for how to program bit switch settings.

Bit Switch 01 - Not used (do not change any of these settings)

Bit Switch 02		
No	**Description**	**Function**
0-2	Not used	Do not change the setting.
3	PDL Sniffing	See PUB(C)-051 for details.
4	Treatment of the last page when printing a job with an odd number of pages using the duplex unit **0:** (default): Last page not fed through the duplex unit 1: Last page fed through the duplex unit	**0:** The last page is not fed through the duplex unit, so the last page faces the opposite way from other pages in the job. 1: The last page is fed through the duplex unit, so the last page faces the same way as other pages of the job. Set this switch to “1” when the customer wishes the last page to be facing the same way as the other pages.
5-7	Not used	Do not change the setting.

Bit Switch 03		
No	**Description**	**Function**
0	PS Fonts Download	See PUB(C)-045 for details.
1-2	Not used	Do not change the setting.
3	CAD printing line widths **0:** OFF (default): 1: ON **-** CAD Printing line widths (255 pens)	**0:** CAD printing line widths is OFF. 1: CAD Printing line widths (255 pens) Set this switch to “1” when the customer wishes to print HP G/L2 files correctly. (Requires controller firmware version 1.09 or newer.).
4-7	Not used	Do not change the setting.

Bit Switch 04 - Not used (do not change any of these settings)

5.2 PRINTER ENGINE SERVICE MODE

5.2.1 SERVICE MODE TABLE ("2. ENGINE MAINTE")

The new SP modes added for this model are shaded.

Mode Name	Description	Function /[Setting]
Regist sag	Paper feed timing	Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.) [-8.0 to +8.0 / 0 mm / 2 mm/step]
Fusing Control	Fusing power control	Selects whether the fusing power control is on/off or phase control. Use "Phase" control if the room lights flicker when the fusing lamp starts. [Normal (USA), Phase (Europe/Asia)]
Fusing Temp	Fusing temperature adjustment	Adjusts the fusing temperature for printing. [100 to 200 / **170°C** / 10°C /step] **DFU**
Fusing T Disp	Fusing temperature display	Displays the fusing temperature.
OHP Clutch Rt	Bypass paper feed roller rotation for transparencies	Selects the number of rotations for the bypass feed roller when the paper type is set to "Transparencies." This is to avoid jams when transparencies are being used.
Fusing Start	Initial fusing setting	Roller turn: Warms up the fusing unit for 20 s at power on or when the machine warms up from the energy saver mode. Normal: There is no 20 s warm-up period. **Normally do not change the setting.**
Charge Rol Bias	Charge roller voltage adjustment	Adjusts the charge roller voltage. **DFU** [1000 to 2000 / **1700V /** 10 V/step]
Mainscan mag	Main scan magnification adjustment	Adjusts the main scan magnification. [-0.5 to +0.5 / **0 %** / 0.1 %/step]
Subscan mag	Sub scan magnification adjustment	Adjusts the sub scan magnification. [-0.5 to +0.5 / **0 %** / 0.1 %/step]
Developer Bias	Development Bias Adjustment	Adjusts the development bias for printing. **DFU** [-800 to –200 / **-700V** / 10 V/step]
Toner End Count	Number of prints after toner near-end is detected	Adjusts the number of prints the machine can print after it detects toner near-end. [50 to 200 / **200 sheets** / 50 sheets/step]

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Mode Name	Description	Function /[Setting]
Transfer Set	Transfer correction current	Adjusts the correction current applied to the transfer roller. [0 - 2 / **0** / 1 step] 0: –2 μA **1: 0 μA** 2: +2 μA 3: +4 μA
Test Pattern	Test pattern selection	Use this to select and print a test pattern. This machine has the following patterns. **No pattern** Checkered pattern Cross stitch 2 dot argyle 1 dot argyle 2 dot trim 2 dot grid 1 dot grid Reset this to 0 after printing the test pattern, or the selected pattern will appear on every page printed by the user.
Thermistor adj	Thermistor adjustment	Charge roller voltage and transfer current automatic adjustment. The machine automatically adjusts these parameters in response to the temperature within the machine. **DFU** [**On**, Off]
Toner end clear	Toner end clear (engine)	Clears the toner end counter in the engine board. **Note:** This mode is not used in this machine.
Waste Toner Count	Waste toner count display	Displays the waste toner counter in the engine board.
Effective info	Cartridge ID chip features that are used	Selects which of the cartridge ID chip functions are enabled. **Normal mode:** Cartridge detection/Type ID/Version Cartridge dtct: Cartridge detection only Note used: All items ignored All used: All items used
Cartridge Lim	Number of prints for a single cartridge	Adjusts the number of prints the machine can make after a new cartridge is detected. **Do not use a higher value than 30 k.** 15k prints 20k prints 25k prints **30k prints** 35k prints 40k prints
Cartridge Stop	Action when toner end is detected	Determines whether the machine stops printing after the cartridge counter reaches the above limit. [**Stop printing** / Do not stop]
Toner end sensor	Toner near-end threshold	Threshold adjustment for the toner end sensor. **DFU** [200 to 1000 / **200 ms** / 100 ms/step]
Cartridge info	Toner cartridge information	Displays toner cartridge information.

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Mode Name	Description	Function /[Setting]
mm/inch display	mm/inch display selection	Display units (mm or inch) for custom paper sizes. 0: mm (Europe/Asia) 1: inch (USA)
ROM Update Disp	User mode "ROM Update" display selection	Currently, user mode "ROM Update" is not used. 0: Display this user mode **1: Do not display this user mode** **Note: Do not change the setting.**
A3/11x17 Count	A3/DLT double count	Specifies whether the counter is doubled for A3/11" x 17" paper. If "Yes" is selected, the total counter counts up twice when A3/11" x 17" paper is used.
Auto Off set	Energy saver on/off	Switches the energy saver mode on/off. **0: Enable**, 1: Disable Note: This setting is the same as the user mode "Energy Saver" in the System menu.
Ulimit Auto Set	Automatically add user code in the Web Status Monitor	Determines whether the machine adds new user codes in the User Management Tool in Smart Net Monitor. **0: Automatically added** 1: Not added
Memory clr	Memory clear	Resets software counters and returns modes and settings to their defaults. Memory all clear: Clears all data Eng: Clears the printer engine settings SCS: Clears the systems settings PRT: Clears user mode system settings NCS: Clears the items listed in the "Host Interface" section of the Configuration page.
Free run	Free run	The machine performs a free run. Press [Enter] to start. Press [Enter] to stop. Please note that the machine will not stop immediately after the [Enter] key is pressed.
Input check	Input check mode	Displays signals received from sensors and switches. See the "Input Check" section for details.
Output check	Output check mode	Turns on electrical components individually for test purposes. See the "Output Check" section for details.
Fusing err clr	SC code reset	Resets a service call condition (for fusing unit errors).
Serial number	Serial Number Programming	Use to input the machine serial number. (This is normally done at the factory.)
Service TEL	Service station number programming	Program the service station number. The number is printed on the meter-charge counter report when the meter-charge mode is turned on.
Set Network	Job spool settings/ Interface selection for Ethernet and wireless LAN	
	HD Job Clear	Treatment of the job when a spooled job exists at power on. 0: Data is cleared **1: Automatically printed**

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Mode Name	Description	Function /[Setting]
Set Network	Job spool (LPR)	Job spool on/off (LPR). 0: Job spool off **1: Job spool on**
	Job spool (IPP)	Job spool on/off (IPP). 0: Job spool off **1: Job spool on**
	Primary I/F	Interface selection for the Ethernet or wireless LAN when both interfaces are available. **0: Ethernet** 1: IEEE802.11b (wireless LAN) Note: This setting is same as the user mode setting “LAN Type” in the Network Setup of the Host Interface menu.
	Current I/F	Displays the current interface setting (Ethernet or wireless LAN).
HDD Init	Initializes the HDD	Initializes the hard disk. **Use this only if there is a hard disk error.**
Prog Checksum	---	**DFU**
IEEE1394		**DFU**
IEEE802.11b	Wireless LAN available channel setting	Sets the maximum and minimum value for the wireless LAN channel adjustment. **DFU** [0 to 14] Europe/Asia: 1 to 13 USA: 1 to 11 **Note:** Do not change the setting, or the machine may be out of compliance with local regulations.
USB	USB settings	
	Transfer Rate	Adjusts the USB transfer rate. **HS/FS: High speed/Full speed auto adjust** (480Mbps/12Mbps) FS Fixation: Full speed (12Mbps fixed) Do not change the setting unless there is a data transfer error using the USB high speed mode.
	Vendor ID	Displays the vendor ID. **DFU**
	Product ID	Displays the product ID. **DFU**
	Dev. Release Num	Displays the development release version number. **DFU**
Test Print	Engine test pattern print	Prints the test pattern that was selected in the “Test Pattern” mode.
Plug/Play	Plug & Play name selection	Select the plug & play name.

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Mode Name	Description	Function /[Setting]
Meter charge	Meter-charge mode	Enable or disable meter-charge mode. **Important:** Turn the main switch off/on after changing this setting. Yes: Enabled **No: Disabled** **Meter charge mode enabled:** • "Replace Maintenance Kit" is not displayed on the operation panel when the PM counter runs out (the technician replaces the maintenance kit items) • The meter charge counter is shown immediately after the Menu key is pressed. • The technician must reset the PM counter after replacing the fusing unit. **Meter charge mode disabled:** • "Replace Maintenance Kit" is displayed on the operation panel when the PM counter runs out (the user replaces the maintenance kit items) • The meter charge counter is not shown when the Menu key is pressed. • The PM counter resets automatically after the user replaces the fusing unit.
Debug Serial	---	**DFU**
Service Report	Prints summary sheet.	
	SP Mode Print	Prints the engine summary sheet.
	NIB Summary	Prints the NIB summary sheet.
Operation time	Total engine rotation cycle	Displays the total number of engine rotation cycles made so far. **Note:** One cycle is calculated as 3.7 s of drum rotation. However, this counter also includes idle rotations. This counter is not reset at PM.
Total counter	Controller total counter display	Displays the controller total counter. This counter is used for meter charge, and it appears when the user presses the Menu key (if meter charge mode is enabled). It does not count up when certain items, such as service reports, are printed (see section 6.6.1. for a complete list of conditions).
Disp ROM ver	ROM version display	Displays the firmware version (system, engine, and duplex).
PM Counter	PM counter display	Displays the PM counter. This is not a page counter. It estimates the page count using the engine rotation cycle count. It counts up one page when the engine has made the average number of rotations that is required for one page of a three-page job.
PM Counter reset	Resets the PM counter	Resets the PM counter. **Important:** If a technician replaces the PM items, reset this counter after replacing these items.
Diag result	Diagnostic result display	Displays the controller self-diagnostic result.
Assert Info	---	**DFU**

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Mode Name	Description	Function /[Setting]
Usercode clr	User code clear	Clears the user code data from the controller board memory.
Total counter	Engine total counter display	Displays the engine total counter. It counts up for all prints, including service reports.

5.2.2 INPUT / OUTPUT CHECK TABLE

The input and output check tables are the same as the base model G056/G058. Refer to section 5.3.2 and 5.3.3 of the G056/G058 manual.

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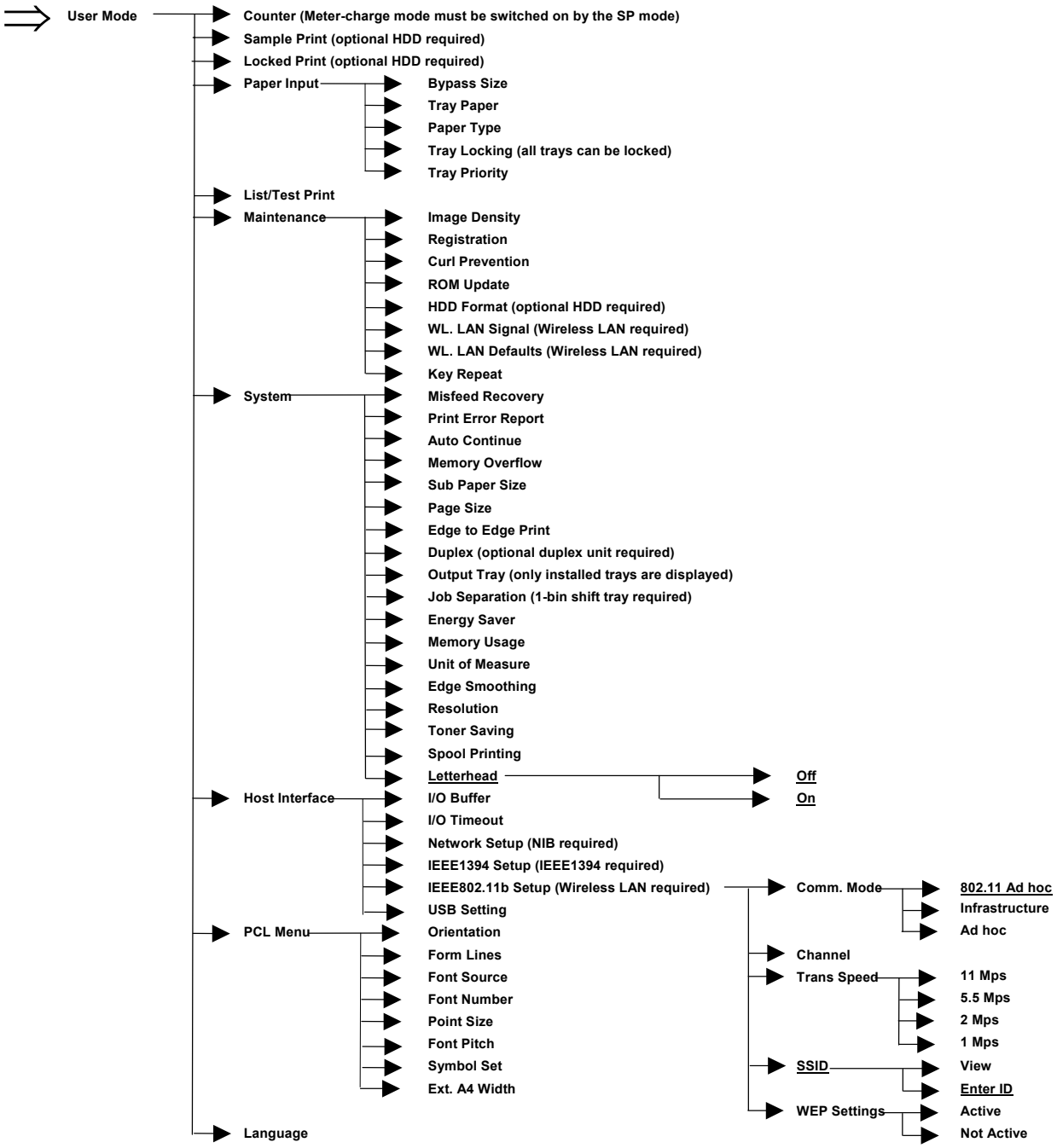
5.3 USER PROGRAM MODE

The user menu list can be printed using “Menu List” in the “List/Test Print” user mode.



NOTE: 1) Note 1: “ROM Update” is currently not used.
2) Press “Enter”, “Escape”, then “Menu” key to display the underlined user mode.

Service Tables

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DETAILED DESCRIPTIONS

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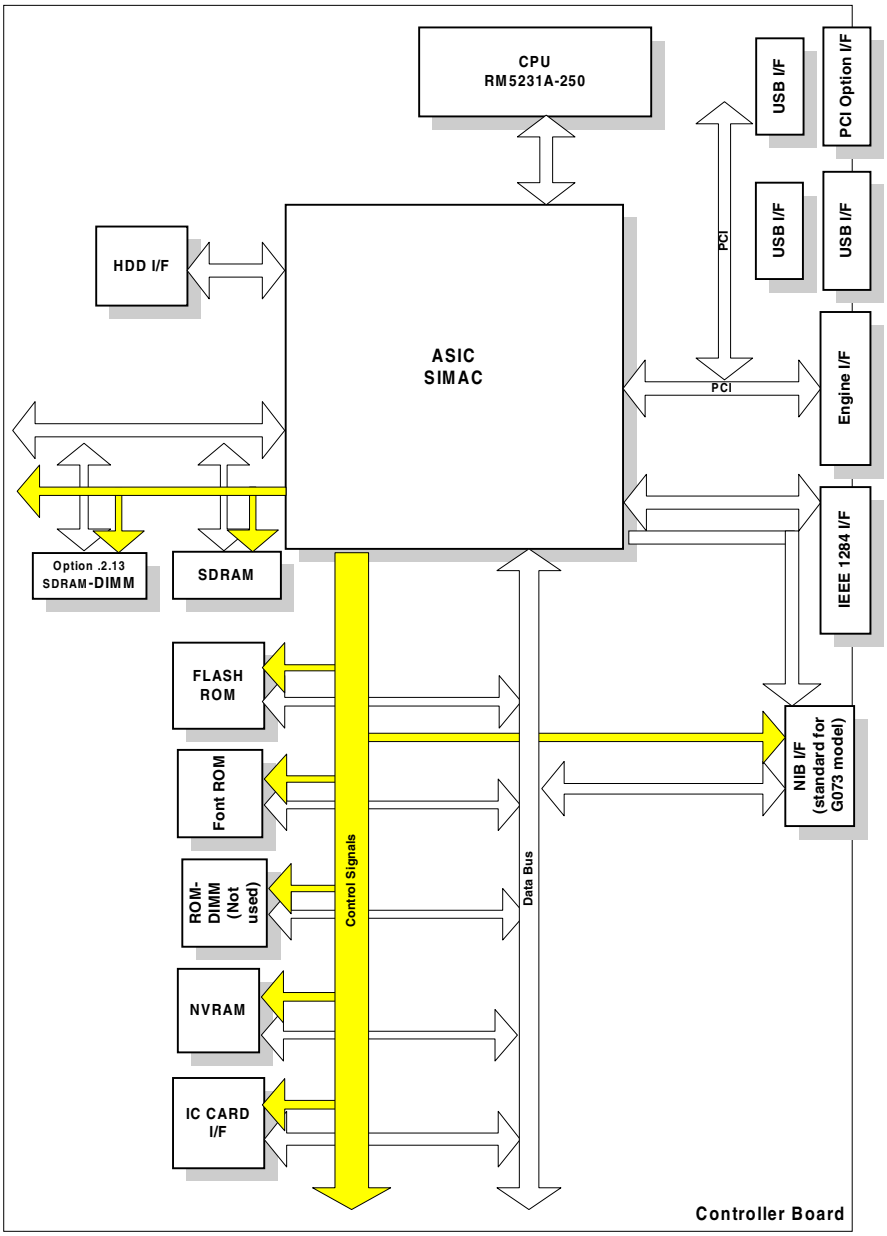
6. DETAILED SECTION DESCRIPTIONS

6.1 CONTROLLER BOARD



SIMAC: The same type of the ASIC is used with the model G056/G058.
CPU: 32-bit CPU (RM5231A-250)
SDRAM: 32MB SDRAM
Flash ROM: 8MB Flash ROM
PCI Interface: Options such as the wireless LAN and IEEE1394 are installed.
NIB Interface: Standard interface for G073 model.

Detailed Descriptions

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6.2 USB

6.2.1 SPECIFICATIONS

This model is equipped with standard USB.

Interface: USB 1.1, USB 2.0
Data rates: 480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed)
High speed mode is only supported by USB 2.0.

6.2.2 USB 1.1/2.0

USB (Universal Serial Bus) offers simple connectivity for computers, printers, keyboards, and other peripherals. In a USB environment, terminators, device IDs (like SCSI), and DIP switch settings are not necessary.

USB 1.1 contains the following features:

- Plug & Play
- Hot swapping (cables can be connected and disconnected while the computer and other devices are switched on)
- No terminator or device ID required
- Data rates of 12 Mbps (full speed), and 1.5 Mbps (low speed)
- Common connectors for different devices

USB 2.0 is an evolution of the USB 1.1 specification. It uses the same cables, connectors, and software interfaces so the user will see no change.
It provides an easy-to-use connection to a wide range of products with a maximum data rate of 480 Mbps (high speed).

Up to 127 devices can be connected and 6 cascade connections are allowed.
Power is supplied from the computer and the maximum cable length is 5 m.

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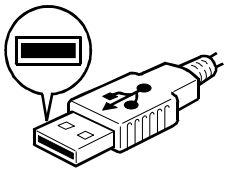
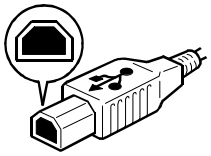
6.2.3 USB CONNECTORS

USB is a serial protocol and a physical link, which transmits all data on a single pair of wires. Another pair provides power to downstream peripherals.
The USB standard specifies two types of connectors, type “A” connectors for upstream connection to the host system, and type “B” connectors for downstream connection to the USB device.



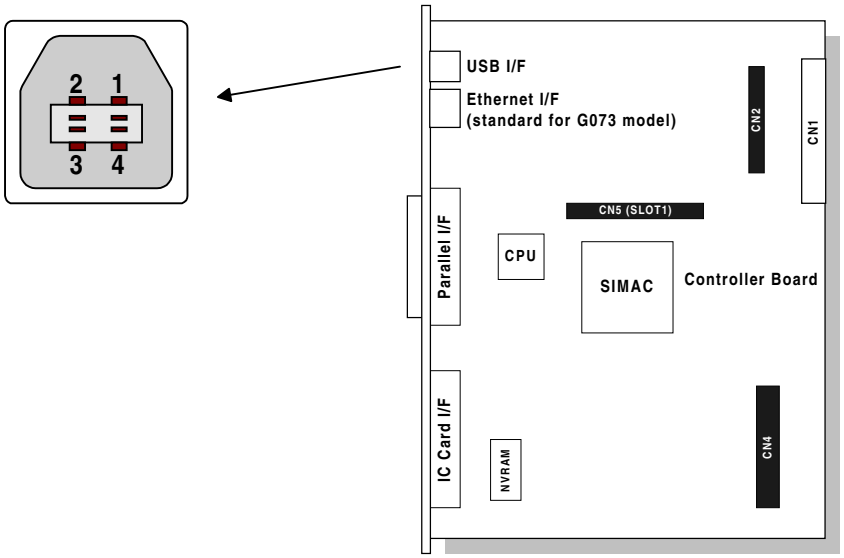
Type “A” connector



Type “B” connector

6.2.4 PIN ASSIGNMENT

The controller has a type “B” receptacle (CN10).



Pin No.	Signal Description	Wiring Assignment
1	Power	Red
2	Data –	White
3	Data +	Green
4	Power GND	White

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6.2.5 REMARKS

- The machine does not print reports specifically for USB.
- Only one host computer is allowed for the USB connection.
- After starting a job using USB, do not switch the printer off until the job has been completed.
  When a user cancels a print job, if data transmitted to the printer has not been printed at the time of cancellation, the job will continue to print up to the page where the print job was cancelled
- When the controller board is replaced, the host computer will recognize the machine as different device.

Related SP Mode

"USB Settings" in the printer engine service mode. Data rates can be adjusted to full speed fixed (12 Mbps). This switch may be used for troubleshooting if there is a data transfer error using the high speed mode (480 Mbps).

Data rates can also be adjusted using the UP mode "USB Setting" in the Host Interface in the System menu.
This mode can be accessed only when the "Enter", "Escape", then "Menu" keys are pressed to enter the UP mode.

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6.3 IEEE802.11B (WIRELESS LAN)

6.3.1 SPECIFICATIONS

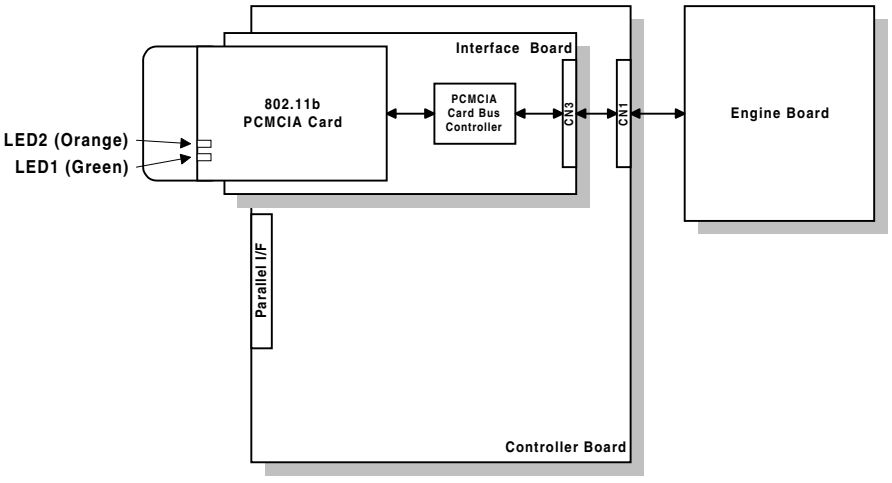
A wireless LAN is a flexible data communication system used to extend or replace a wired LAN. Wireless LAN employs radio frequency technology to transmit and receive data over the air and minimize the need for wired connections.

- With wireless LANs, users can access information on a network without looking for a place to plug into the network.
- Network managers can set up or expand networks without installing or moving wires.
- Most wireless LANs can be integrated into existing wired networks. Once installed, the network treats wireless nodes like any other physically wired network component.
- Flexibility and mobility make wireless LANs both effective extensions of and attractive alternatives to wired networks.

Standard applied: IEEE802.11b
Data transfer rates: 11 Mbps/5.5 Mbps/2 Mbps/1 Mbps (auto sense)
Network protocols: TCP/IP, Apple Talk, NetBEUI, IPX/SPX
Bandwidth: 2.4GHz
(divided over 14 channels, 2400 to 2497 MHz for each channel)

NOTE: The wireless LAN cannot be used together with the Ethernet. The “LAN Type” setting in the Host Interface menu determines the LAN interface to be used.

6.3.2 BLOCK DIAGRAM



LED Indicators

LED	DESCRIPTION	ON	OFF
LED1 (Green)	Link status	Link success	Link failure
LED2 (Orange)	Power distribution	Power on	Power off

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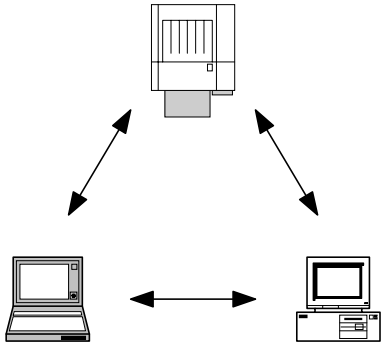
6.3.3 TRANSMISSION MODE

The following transmission modes are provided for wireless communication.

Ad hoc Mode

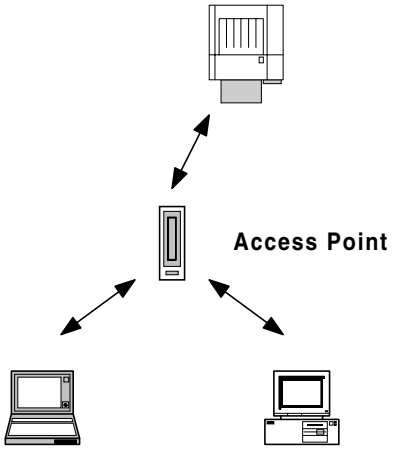


The ad hoc mode allows communication between each device (station) in a simple peer-to-peer network. In this mode, all devices must use the same channel to communicate.

In this machine, the default transmission mode is ad hoc mode and the default channel is 11. First, set up the machine in ad hoc mode and program the necessary settings, even if the machine will be used in the infrastructure mode.

To switch between ad hoc and infrastructure modes, use the following user tool: Host Interface Menu - IEEE802.11b - Comm Mode

Infrastructure Mode



The infrastructure mode allows communication between each computer and the printer via an access point equipped with an antenna and wired into the network. This arrangement is used in more complex topologies.

- The wireless LAN client must use the same SSID (Service Set ID) as the access point in order to communicate.

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6.3.4 SECURITY FEATURES

SSID (Service Set ID)
The SSID is used by the access point to recognize the client and allow access to the network. Only clients that share the same SSID with the access point can access the network.

NOTE: 1) If the SSID is not set, clients connect to the nearest access point.
2) The SSID can be set using the web status monitor or telnet.

Using the SSID in Ad hoc mode

When the SSID is used in ad hoc mode and nothing is set, the machine automatically uses “ASSID” as the SSID. In such a case, “ASSID” must also be set at the client.

NOTE: SSID in ad hoc mode is sometimes called “Network Name.”

Some devices automatically change from ad hoc mode to infrastructure mode when the same SSID is used in ad hoc mode and infrastructure mode. In such a case, to use the device in ad hoc mode, use a specified SSID in infrastructure mode and use “ASSID” in the ad hoc mode.

WEP (Wired Equivalent Privacy)
WEP is a coding system designed to protect wireless data transmission. In order to unlock encoded data, the same WEP key is required on the receiving side. There are 64 bit and 128 bit WEP keys. However, this machine supports only 64 bit WEP.

NOTE: The WEP key can be set using the web status monitor or telnet.

MAC Address
When the infrastructure mode is used, access to the network can also be limited at the access points using the MAC address. This setting may not be available with some types of access points.

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6.3.5 TROUBLESHOOTING NOTES

Communication Status

Wireless LAN communication status can be checked with the UP mode “W.LAN Signal” in the Maintenance menu. This can also be checked using the Web Status Monitor or Telnet.
The status is described on a simple number scale.

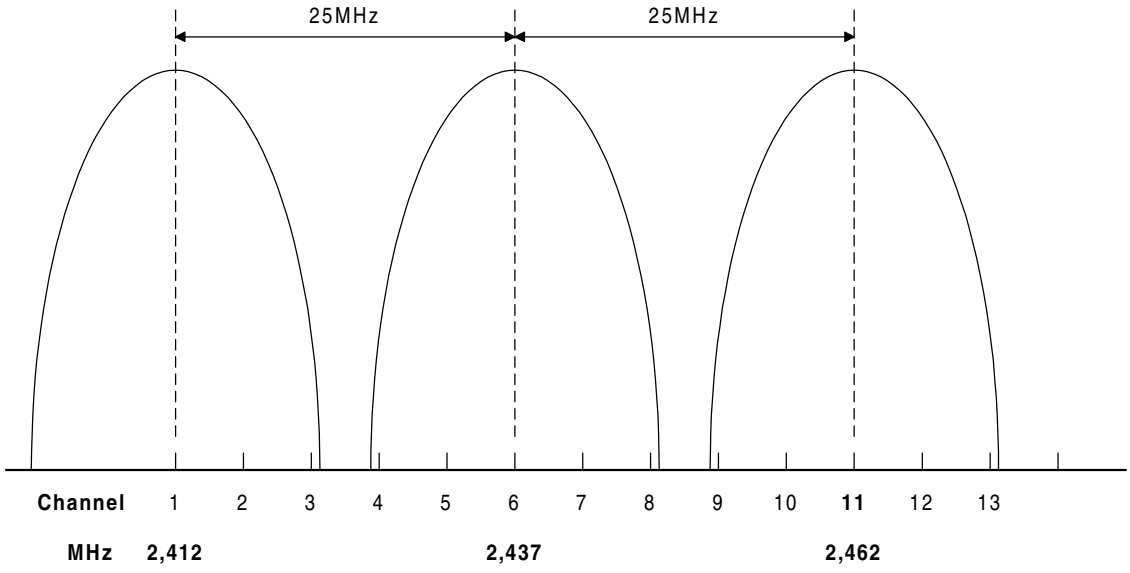
STATUS DISPLAY	COMMUNICATION STATUS
Good	76~100
Fair	41~75
Poor	21~40
Unavailable	0~20

NOTE: Communication status can be measured only when the infrastructure mode is being used.

Channel Settings

If a communication error occurs because of electrical noise, interference with other electrical devices, etc., you may have to change the channel settings.

To avoid interference with neighboring channels, it is recommended to change by 3 channels. For example, if there are problems using channel 11 (default), try using channel 8.



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Troubleshooting steps

If there are problems using the wireless LAN, check the following.

1) Check the LED indicator on the wireless LAN card.
2) Check if “IEEE802.11b” is selected in the UP mode LAN Type in Network Setup in the Host Interface menu.
3) Check if the channel settings are correct.
4) Check if the SSID and WEP are correctly set.

If infrastructure mode is being used,

1) Check if the MAC address is properly set
2) Check the communication status
   If the communication status is poor, bring the machine closer to the access point, or check for any obstructions between the machine and the access point.
   If the problem cannot be solved, try changing the channel setting.

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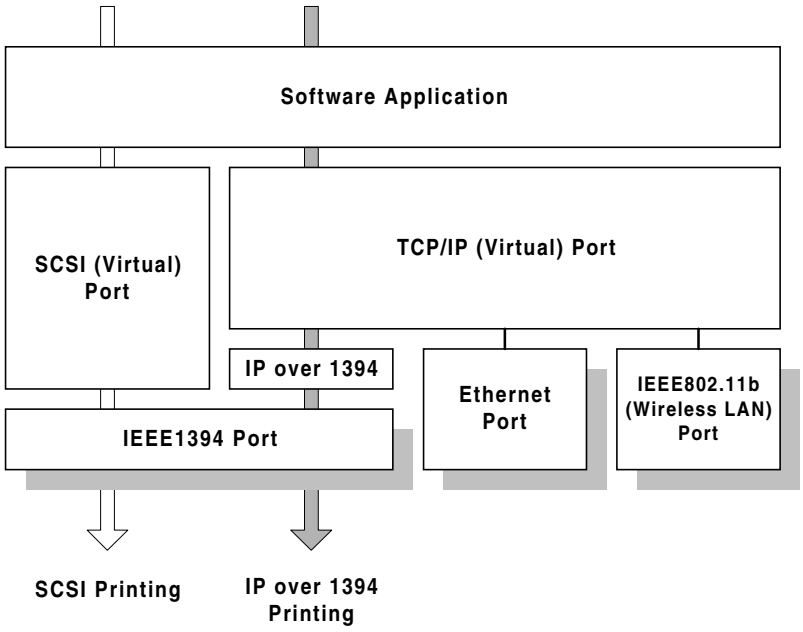
6.4 NEW FEATURES

6.4.1 IP OVER 1394

In addition to IEEE1394 printing, a feature supported in the model G056/G058, this machine supports IEEE1394 printing by setting an IP address. This feature is called ‘IP over 1394’.
The former IEEE1394 printing without IP address is known as ‘SCSI printing’.



NOTE: 1) Windows XP is the only OS which supports IP over 1394.
2) Windows XP and 2000 supports IEEE1394 SCSI printing.

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6.4.2 JOB SPOOLING

Description

Print data can be spooled (stored) in the machine's HDD, and the machine starts to print when data transfer is complete. Since the machine stores all data first before printing, the host computer is freed up more quickly.

NOTE: 1) This feature is only available when an optional HDD is installed in the machine.
2) The supported print protocols are IPP and LPR.
3) The default setting for this feature is 'off'. The user must switch it on using UP mode to enable this feature.

- The size of the HDD partition for job spooling is 500 MB.
- The partition can hold up to 50 jobs.

Related SP Modes

Job spooling can be turned on and off using printer engine service mode "Set Network" menu separately for each protocol.

"Job spool (LPR)": Job spooling on/off for LPR.
"Job spool (IPP)": Job spooling on/off for IPP.

The machine does not spool jobs when job spooling is switched off with the SP mode, even when the customer switches it on with the user mode.

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SPECIFICATIONS

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SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Printing Speed:	Maximum 26 pages per minute (A4/LT LEF) (20 pages: duplex printing)
Printer Languages:	PCL6/PCL5e PostScript 3 RPCS (Refined Printing Command Stream: an original Ricoh PDL) TIFF (rev 6.0 compatible)
Resolution:	1200 dpi (PCL6/PS3/RPCS) 600 dpi (PCL 6/PCL5e/PS3/RPCS) 300 dpi (PCL 5e/PS3)
Resident Fonts:	PCL: 35 Intellifonts 10 True Type fonts PS3: 136 fonts (24 Type 2 fonts, 112 Type 14 fonts)
Host Interfaces:	Bi-directional IEEE1284 parallel x 1: Standard USB 2.0/1.1 Ethernet (100 Base-TX/10 Base-T): Standard for G073 IEEE1394 IEEE802.11b (wireless LAN)
Network Protocols:	TCP/IP, IPX/SPX, NetBEUI, Apple Talk
First Print Speed:	6.5 s or less (A4/LT LEF, standard tray)
Warm-up Time	Less than 12 seconds (Less than 19 seconds from power on)
Print Paper Capacity:	Standard tray: 250 sheets Optional paper tray unit: 500 sheets (up to two paper tray units can be installed) Optional by-pass tray: 100 sheets
Print Paper Size:	Maximum: A3/11" x 17" Minimum: Standard tray: A5 LEF Optional paper tray: A5 LEF By-pass: A6/ 90 x 148 mm SEF (Refer to "Supported Paper Sizes".)
Printing Paper Weight:	Standard tray: 60 to 105 g/m^2 (16 to 28 lb.) Optional paper tray: 60 to 105 g/m^2 (16 to 28 lb.) By-pass tray: 52 to 162 g/m^2 (14 to 43 lb.)

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SPECIFICATIONS

Output Paper Capacity:
Standard output tray: 250 sheets
Optional 1-bin shift tray: 250 sheets
Optional 4-bin mailbox: 200 sheets total

Memory: Standard 32 MB, up to 96 MB with optional DIMM

Power Source:
120 V, 60 Hz: More than 10 A (for North America)
220 V - 240 V, 50/60 Hz: More than 6.0 A (for Europe)

Power Consumption:

	120V	230V
Maximum	940 W or less	940 W or less
Printing	650 W or less	650 W or less
Energy Saver	22 W or less	22 W or less

Noise Emission:

	Mainframe Only	Full System
Printing	64 dB or less	68 dB or less
Stand-by	40 dB or less	40 dB or less

NOTE: The above measurements were made in accordance with ISO 9296 at the operator position.

Dimensions (W x D x H): 478 x 437 x 305 mm

Weight: Approximately 18 kg (cartridge included)

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1.1 SUPPORTED PAPER SIZES

Paper	Size (W x L)	Paper Trays Main Unit/Option		By-pass Tray	Env. Feeder	Duplex
		US	Eur/Asia			
A3	297 x 420 mm	Y#/Y	Y/Y	Y#	N	Y
B4	257 x 364 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A4 SEF	210 x 297 mm	Y#/Y	Y/Y	Y#	N	Y
A4 LEF	297 x 210 mm	Y/Y	Y/Y	Y#	Y	Y
B5 SEF	182 x 257 mm	Y#/Y#	Y#/Y#	Y#	N	Y
B5 LEF	257 x 182 mm	Y#/Y#	Y#/Y#	Y#	N	Y
A5 SEF	148 x 210 mm	N	N	Y#	N	N
A5 LEF	210 x 148 mm	Y#/Y#	Y/Y#	Y#	N	Y
A6 SEF	105 x 148 mm	N	N	YC	N	N
Ledger	11 x 17”	Y/Y	Y#/Y	Y#	N	Y
Legal	8.5 x 14“	Y/Y	Y#/Y	Y#	N	Y
Letter SEF	8.5 x 11”	Y/Y	Y/Y	Y#	N	Y
Letter LEF	11 x 8.5”	Y/Y	Y/Y	Y#	N	Y
Half Letter SEF	5.5 x 8.5”	N	N	Y#	N	N
Half Letter LEF	8.5 x 5.5”	N	N	N	N	N
Executive SEF	7.25 x 10.5”	N/Y#	N/Y#	Y#	N	N
Executive LEF	10.5 x 7.25”	Y#/Y#	Y#/Y#	Y#	N	Y
F	8 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Foolscap	8.5 x 13”	Y/Y#	Y#/Y#	Y#	N	Y
Folio	8.25 x 13”	Y#/Y#	Y#/Y#	Y#	N	Y
Com10 Env.	4.125 x 9.5”	N	N	Y#	Y#	N
Monarch Env.	3.875 x 7.5”	N	N	Y#	Y#	N
C6 Env.	114 x 162 mm	N	N	Y#	Y#	N
C5 Env.	162 x 229 mm	N	N	Y#	Y#	N
DL Env.	110 x 220 mm	N	N	Y#	Y#	N
8K	267 x 390 mm	Y#/Y#	Y#/Y#	Y#	N	Y
16K SEF	195 x 267 mm	Y#/Y#	Y#/Y#	Y#	N	Y
16K LEF	267 x 195 mm	Y#/Y#	Y#/Y#	Y#	N	Y
Custom	Minimum: 90 x 148 mm Maximum: 297 x 432 mm	N/YC	N/YC	YC	N	N

Remarks:

Y	Supported. The paper size sensor detects the paper size.
Y#	Supported. The user has to select the correct paper size for the tray.
YC	Supported. The user has to enter the width and length of the paper.
N	Not supported.

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2. SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

2.1 PRINTER DRIVERS

Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000/XP	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

NOTE: 1) The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
2) The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.
3) The PS3 driver for Macintosh supports Mac OS 8.1 or later versions.

2.2 UTILITY SOFTWARE

Software	Description
Agfa Font Manager (Win 95/98/Me, NT4, 2000)	A font management utility with screen fonts for the printer.
SmartNetMonitor for Admin (Win 95/98/Me, NT4, 2000, XP)	A printer management utility for network administrators. NIB setup utilities are also available.
SmartNetMonitor for Client (Win95/98/Me, NT4, 2000, XP)	A printer management utility for client users.
1394 Utility (rm1394pr.exe) (Win 2000, XP)	A 1394 utility removes all IEEE1394 port and printer information from the Windows registry.
Printer Utility for Mac (Mac OS 8.1 or later)	This software provides several convenient functions for printing from Macintosh clients.

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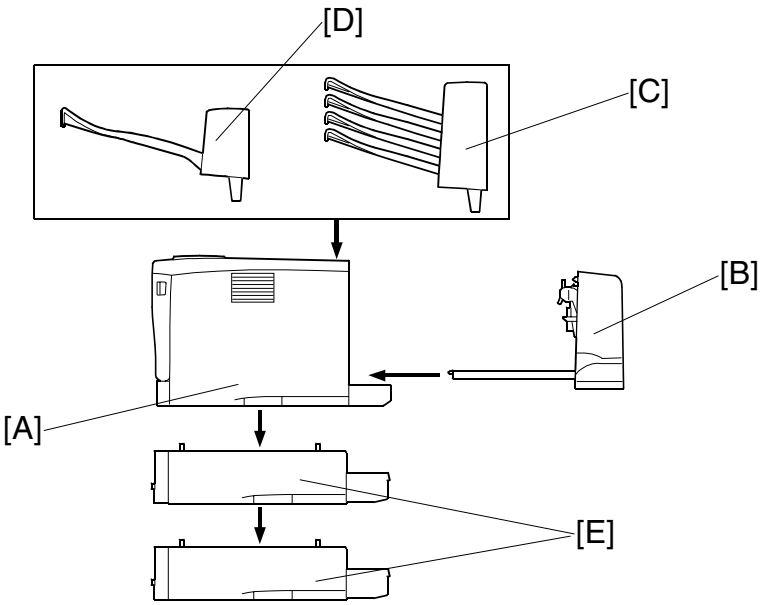
3. MACHINE CONFIGURATION

3.1 SYSTEM COMPONENTS



Item	Machine Code	No.	Remarks
Main Unit	G073 G074	A	G073: Standard onboard NIB
Option			
Duplex Unit	G552	B	
4-bin Mailbox	G553	C	
1-bin Shift Tray	G554	D	
Paper Tray Unit	G555	E	Up to two tray units can be installed.
Envelope Feeder	G556	E	When two paper tray units are installed, it must be installed in the upper unit.
Others			
Maintenance Kit	G770		

NOTE: All the above items are user installable.

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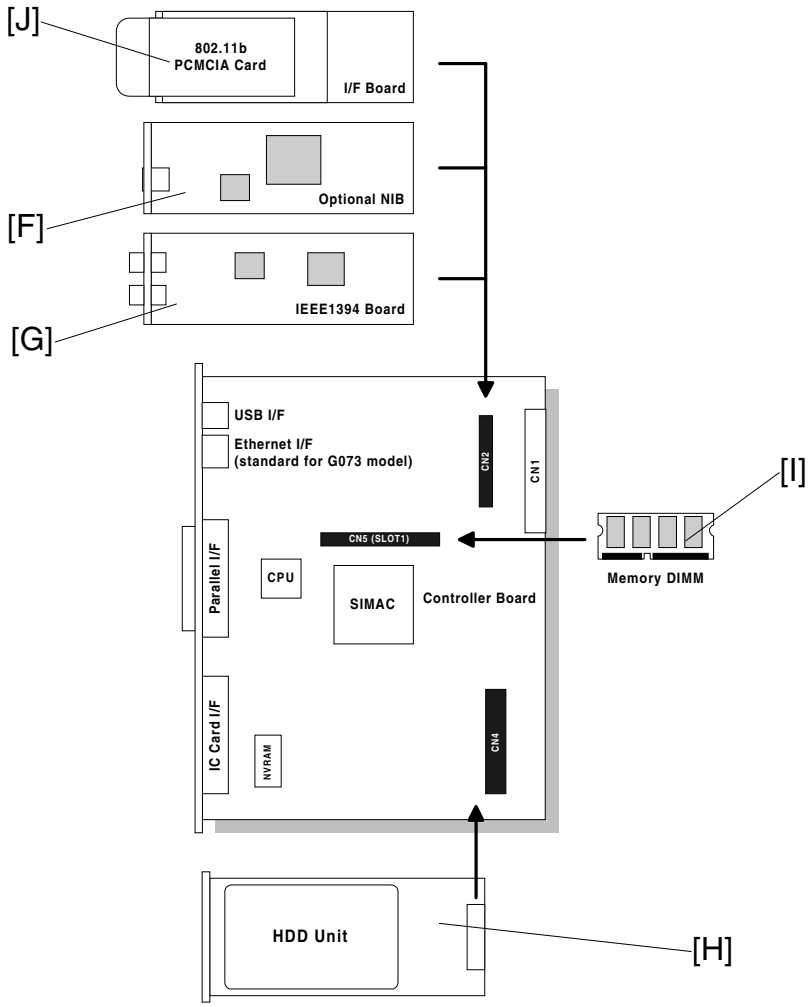
3.2 INTERNAL OPTIONS



Internal Options			
NIB	G646	F	New option for this model (for G074 only; G073 has one built-in)
IEEE1394	G336	G	New option for this model
HDD	G575	H	
Memory 64 MB	G579	I	
Wireless LAN (IEEE802.11b)	G628	J	New option for this model

Table of Available Interfaces

	Standard I/F	Optional I/F	Remarks
G073 Model	USB IEEE1284 Ethernet	IEEE1394 IEEE802.11b	Either optional interface can be installed.
G074 Model	USB IEEE1284	Ethernet IEEE1394 IEEE802.11b	One of these optional interfaces can be installed.

NOTE: The G073 model has an on-board Ethernet interface.

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4. OPTIONAL EQUIPMENT

All of the following options are also used with the base model (G056/G058). Please refer to the base model service manual for specifications.

- Paper Tray Unit
- Envelope Feeder
- Duplex Unit
- Four-bin Mailbox
- One-bin Shift Tray

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